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# The Oliver-Sharpey Lectures
ON
# HEART FAILURE.

*Delivered before the Royal College of Physicians of London on April 4th and 6th, 1911,*

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## LECTURE II.[1]

*Delivered on April 6th.*

## THE ESTIMATION OF HEART FAILURE AND THE SIGNIFICANCE OF SYMPTOMS.

MR. PRESIDENT AND GENTLEMEN,—In this lecture I wish to place before you the method of estimating the degree of heart failure and of determining the significance of symptoms which I have employed for several years. Before dealing more particularly with the method and its application, I shall first describe in broad outline the nature of the heart's force, the manner of its exhaustion, and the way in which symptoms are produced.

### THE ESSENTIAL FACTORS IN MAINTAINING THE CIRCULATION.

The function of the circulation is the supply to the tissues of a material capable of nourishing them, and the removal of such waste products as can enter the circulation. The heart and blood-vessels are constructed specially to favour this object. The heart muscle supplies the force which maintains the circulation, and the blood-vessels are so constructed as to facilitate the work of the heart. Any disturbance in that adjustment must at once entail more work upon the heart muscle, inasmuch as a departure from the normal means the embarrassment of the heart in its work. From this consideration it will be seen that the essential factor in maintaining the circulation is the heart muscle, and any process of disease in the heart or blood-vessels impairs the circulation by embarrassing the heart muscle in its work.

### THE NATURE OF THE HEART'S FUNCTIONS.

As the heart possesses the power of varying its activity according to the bodily requirements, the force inherent in the heart muscle may be considered for practical purposes to be composed of two parts—namely, a part which is employed to maintain an efficient circulation when the body is at rest, and which therefore may be called the "rest force." The rest force is the minimal force which the heart can exert to maintain the circulation at a level consistent with life, and impairment of it leads inevitably to a fatal issue. The second part of the heart's force is that which is called upon when the body makes some effort. While the body is at rest, this potential force is not exercised, but its existence enables us to undertake with ease all forms of effort. Inasmuch as this part of the heart's force is only used when exertion is made, it may appropriately be called the "work force" of the heart.

### THE BEARING OF DISEASE PROCESSES ON THE HEART'S WORK.

The reason for this division of the heart's power into the rest force and work force is that it enables us to understand better what constitutes heart failure. When we reflect that any disturbance of the circulatory mechanism leads to an embarrassment of the heart muscle in its work, we shall realise that heart failure means inability of the heart muscle to overcome successfully the obstacles opposing it in its work. The disturbances of the circulatory mechanism may be of a very varied character, and may arise from a great number of causes, and it is from the standpoint of possible obstacles to the heart muscle in its work that the bearing of all seeming abnormalities should be considered. Thus valvular defects should be studied not as specific affections in themselves, but as sources of embarrassment of the heart muscle in its work, or as indications of disease, which may have extended to and damaged the walls of the heart or blood-vessel—for example, the aorta or coronary arteries. In like manner, irregular action of the heart should be considered as to whether the irregular or inco-ordinate contraction of the chambers embarrasses the heart in its work, or whether its cause impairs the heart's efficient working. Arterial degeneration and high blood pressure, while requiring full consideration, should be viewed, so far as the heart is concerned, as agents tending to upset the normal adjustment of the factors which carry on the circulation, or as evidence of disease, which may affect the heart muscle or its blood-vessels. The possibility of inherent defects in the muscle wall itself should be considered in all cases, as they naturally have a most important bearing on the heart's efficiency. In this connexion insufficient or improper food, overwork, bodily or mental, too little time given for rest and restoration of the heart's strength, worry, and sleeplessness, the reaction of the nervous system and other organs upon the heart, should all be taken into account when the factors producing heart failure are being considered.

### HOW HEART FAILURE BEGINS.

Bearing in mind the division that I have given of the heart's power, it will be found that heart failure invariably starts in the first instance by exhaustion of the work force. The exhaustion is slight at first, but by the persistence of the causal factors it proceeds apace, until after a period, long or short, the exhaustion induces such distress as to compel attention, or the rest force is encroached upon, and with the exhaustion of the rest force a point of danger to the life of the individual is reached.

### THE RELATIONSHIP BETWEEN EXHAUSTION AND RESTORATION OF THE WORK FORCE OF THE HEART.

From this conception of the exhaustion of the heart's strength we can perceive the manner in which heart failure arises. The daily routine of a man accustomed to bodily labour shows a period of rest and a period of work, the one balancing the other, the period of exhaustion of the work force requiring a sufficient period of repose for its restoration. The life of man is so marked out that each day's work is roughly estimated by what a healthy man can do. If an individual has to do the work of a healthy man, but is hampered by some inherent defect, his work force is more speedily exhausted, and he requires a longer period for recuperation. If this is not obtained, then in course of time exhaustion increases, and the period of rest becomes less efficient and heart failure sets in. In the first instance, then, heart failure is no more than the inability of the heart to regain sufficient work force during its period of rest. The rate at which heart failure progresses depends on the unequal relation between the bodily exertion and the amount of rest. The agents embarrassing the heart in its work need not necessarily be of cardiac origin; it may be the blood-vessels, or diseases of other systems, or it may be due to some bodily condition, as obesity. When it is a heart lesion, which embarrasses the heart in its work, the failure should not necessarily be considered as due to the heart lesion, but due to the individual attempting to do a healthy man's work handicapped by his defect. In the recognition of this fact we get the clue, not only to the cause of the heart failure, but a reasonable suggestion as to its rational treatment.

### THE NATURE OF THE SYMPTOMS IN VISCERAL DISEASE.

Before dealing with the method by which we recognise heart failure, I will take the opportunity of presenting briefly to you a view of the symptomatology of visceral disease, which enables us to get a clear idea of the nature of symptoms. Visceral disease is made manifest to us by a series of phenomena, which can be separated into three distinct groups: 1. Symptoms due to changes in the organ itself, as alteration in its size, its shape, and in the case of the circulatory system, in the rate and rhythm of the heart movements, and of the state of the vessels. 2. Symptoms due to impaired function, shown, it may be, in other tissues and organs, as in the case of heart affections, where syncope may arise from deficient supply of blood to the brain. 3. Symptoms due to reflex stimulation of other systems. This last class of symptoms includes in the main a series of phenomena which may be considered protective in their

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functions, and it is more particularly to these that I would desire to draw attention.

All organs of the body are endowed with a protective mechanism, which operates by calling into activity the functions of other systems. The immediate cause of this awakening of the protective mechanism is the exhaustion or disturbance of the function of the organ. The evidence for this view of symptoms may be best studied in affections of the heart. If, for instance, we wish to get an idea of how the heart performs its work we shall find the best evidence in the study of the class of symptoms included in this group. When exhaustion sets in the first sign is given by some sensation of distress. This sensation arises by calling into play some part of the nervous system. The sensations may be of varied character, as a sense of exhaustion, choking sensation in the throat, tightness across the chest, dyspnœa, or pain. When such sensations arise during effort they act as an imperative call to desist from further exertion. When, then, we seek to estimate the condition of the work force, we find a guide as to its amount by estimating the response of the individual to effort. Exhaustion of a healthy heart will produce symptoms identical with a diseased heart, and the difference is only in the ease with which these symptoms are induced, or, in other words, in the amount of the work force. Hence, as the appearance of certain symptoms indicates the exhaustion of the work force, we can gather from these symptoms the amount of work force which the heart possesses. The first evidence of heart failure is invariably a subjective one, although it may be ignored for a time. The patient's attention is drawn first to his condition by some feeling of distress in the performance of some act which he was wont to undertake without discomfort. It is the limitation of the field of cardiac response with the interposition of the protective mechanism which is the first and dominant sign in all forms of heart failure, and it is by the due appreciation of the patient's sensations that the physician obtains the most reliable information about the condition of the heart's strength.

### THE STANDARD FOR ESTIMATING THE HEART'S STRENGTH.

The standard by which the heart's strength is measured is peculiar to the individual. The field of response to effort varies widely in different individuals with healthy hearts. Each one knows the amount of effort he can put forth without distress, and this is the only practical standard. It is the appreciation of this fact that distress is evoked prematurely that indicates the beginning of heart failure. The kind of distress called forth varies—breathlessness, palpitation, a sense of exhaustion, suffocation, or pain are the most common sensations experienced. By the time objective signs of heart failure have arisen, such as dropsy, laboured breathing when at rest or after slight exertion, increased rate, dilatation, the heart failure has proceeded a long way. When such objective signs persist when the body is at rest the work force is practically expended, and the rest force is being exhausted.

### ESTIMATION OF THE SIGNIFICANCE OF SYMPTOMS.

From this conception of heart failure and the manner by which symptoms of heart failure arise we are able to set a standard by which the significance of symptoms may be estimated. The simple test is to observe how the heart responds to effort. It is manifest that if a heart be handicapped exhaustion will occur prematurely. It is necessary, therefore, that evidences of premature exhaustion should be sought for. As I have said, the standard of response is a personal one, no two healthy men responding exactly alike. It is necessary to be able to discriminate the relative strength of different individuals before applying this method of estimation, and it is in this connexion that great judgment should be exercised. If there be present in the heart some abnormal sign, as an increase in the size, a murmur, or an irregularity, but with no limitation of the field of cardiac response, it may be taken for granted that the cause of the abnormal sign has not impaired the functional efficiency of the heart muscle, and therefore that it is of little significance so far as heart failure is concerned. When there is marked restriction of the field of cardiac response, and the individual presents some abnormality, it does not necessarily follow that the cause of the abnormality is the cause of the heart failure. A careful inquiry has to be made into other circumstances, such as proper food-supply, other affections of the body, overwork, worry, sleeplessness, and so forth. Many individuals suffer from extreme heart failure who never show any objective sign, the heart's action and size agreeing in every respect with our conception of what is normal. But if this method of estimating the condition of the work force be followed symptoms of a characteristic kind will be found that will show the extent of the heart failure, and warn the physician when danger is impending.

### NEGLECT OF THE SIGNIFICANCE OF THE PROTECTIVE PHENOMENA.

In putting forth this view that heart failure can be detected and that the significance of symptoms can be estimated by the observance of how the heart responds to effort, I make no pretence to originality. It was Graham Steell, who pointed out to me many years ago the great significance of "muscle failure." Practically everyone is willing to admit the truth of the proposition that it is the inability of the muscle to maintain an efficient circulation which is the cause of heart failure. But it is necessary to insist upon it here, for though everyone may admit it, few think it worth while to look at heart failure from this point of view. At all events, the testing of the heart's efficiency by observing how the heart responds to effort is never taught. If we were to seek in text-books for a method to estimate the value of a symptom we should find most writers so vague that one could read a large volume and rise from it with no notion of how the author would estimate the value of the simplest phenomenon. When writers do offer advice as to the estimation of the value of any symptom they may go so far as to say that an opinion should not be based on the symptom alone, but that a decision should be given after inspection, palpation, percussion, and auscultation. That is to say, every possible means should be taken except the one of real importance. If we look further, we shall find how this very commonplace method is ignored. I have already referred to the methods in the army, where an individual is rejected merely on account of the presence of a murmur or an irregularity. Look at the question in an insurance paper: "Are the heart sounds free from murmurs?" "Is the heart regular in its action?" Not a word as to the essential symptoms of heart failure. When a murmur or an irregularity is noted, some insurance offices have what they call a "heart form" to fill in, which is so arranged that the essential symptoms that would lead to an intelligent appreciation of the value of the abnormal symptom are practically neglected.

### INADEQUACY OF METHODS USUALLY EMPLOYED TO ESTIMATE THE HEART'S EFFICIENCY.

There have been many attempts made to find some reliable method which could be applied to the differentiation of the value of symptoms by estimating the integrity of the heart. Attempts have been made by counting the heart beats after a short period of violent exertion, a method which is of little use except in rare cases, and which is full of fallacies and liable to mislead. Instrumental methods appeal so strongly to the imagination that we have attempted methods of valuation which are based entirely on a misconception of what it is they should reveal. We have elaborate blood pressure instruments, supposed to show the coefficiency of the heart's strength in the terms of a mathematical formula. We have graphic records, and even the electro-cardiograph. I am the last to decry the use of these methods, for they all have a very important sphere of usefulness, but I have little hesitation in saying that as a means of estimating the heart's integrity and capacity, and elucidating the significance of symptoms, they can only supply a very limited amount of information. When we reflect as to what are the essential conditions which lead to heart failure we shall at once recognise the great limitations of all methods which depend on the use of mechanical contrivances. Further, seeing that heart failure is first exhibited by a diminution of the work force of the heart, and that this is shown by a restriction of the field of effort, it will be understood how insufficient all methods are which depend on the examination of the body at rest.

### THE IMPORTANCE OF SUBJECTIVE SENSATIONS.

On the other hand, the due perception of the symptoms which arise in the early stages of heart failure, and their modification as exhaustion of the work force of the heart proceeds, furnishes evidence of such value that we can

estimate not only the degree of heart failure but the significance of any objective sign which may be found. For this purpose it is necessary that we should recognise the symptoms, and as they are in the main subjective their appreciation is surrounded with many difficulties. When we reflect on the enormous amount of time that has been spent in the elucidation of many of the signs revealed by physical examination, and the indifference with which subjective symptoms have been treated, we shall realise how it has come about that the estimation of the value of symptoms has been so inadequate. Many of the most significant symptoms are ignored in the examination of patients, and few are properly understood. Such a striking phenomenon as breathlessness, a symptom so prominent that neither physician nor patient can overlook it, is still so obscure that we have little knowledge of its varied forms and the mechanism of their production, and in consequence we lose the significance of each form. In like manner, the most dominant of symptoms—pain, a symptom so instructive and universal in its occurrence—has never been appreciated. Even at this day we know little of its mechanism, and because it is a subjective symptom and one which the physician cannot recognise by mechanical methods, its presence receives but the slightest consideration. The result is that this most instructive symptom is banished as a phantasy or labelled as a pseudo-angina pectoris or exaggerated into a symptom of the most dreadful kind. I think there is nothing so futile and so misleading in clinical medicine as the usual description of pain in affections of the heart. The same neglect is shown in regard to the sensory phenomena associated with pain—for example, the hyperalgesia of the external body wall, the sense of compression of the chest, the feeling of suffocation in the throat. These phenomena, when present singly or two or more together, are frequently the only grounds on which a safe opinion can be based. There is another series of sensations caused by the action of the heart, which would be of the greatest help if we understood them. At present the cause of many heart affections cannot be detected because certain changes in the heart's rhythm occur at infrequent times. If we but appreciated the patient's sensations, we should often be able to recognise the condition that caused the distress. When opportunity is offered it will be found that such sensations as "fluttering of the heart," the "sensation of stoppage," and the "thumping sensation" are due to very distinct and definite changes in the heart's action.

### METHOD OF EXAMINATION.

In applying this method of estimating the value of symptoms, I insist upon the patient describing his own sensations and all attendant circumstances minutely. I carefully inquire into the manner in which an individual presenting any abnormal sign accomplishes his daily work or play. If he is young, how he comports himself during effort, as in playing some game or running a race; if he is middle-aged or elderly, how he carries out his work, and also how he may be able to undertake some effort. I try to ascertain if he can do the work and effort of a healthy man at his time of life, and if the inquiry satisfies me that he can do them I give him a good prognosis. In doing this I am testing the amount of work force, and if I find that even with a recognisable defect the individual does lead a healthy, untrammelled life, then I know that I have to do with an efficient heart muscle, and the defect is so slight that it does not perceptibly embarrass the heart in its work. When there is any limitation of this power, then a careful scrutiny is made into all the possible factors, such as overwork, worry, sleeplessness, and other diseases, which may induce exhaustion of the work force. If in addition there be any manifest lesion, then its bearing on heart failure is carefully considered to see whether its presence is merely incidental or whether it is a progressive lesion, or, again, whether it is stationary, but its presence has handicapped the heart in its work.

It may be as well to bring out the value of this method by showing how I have utilised it in actual practice. In the young, with the functional murmurs and irregularities which I have already mentioned, the individual's account of how he plays his games and reacts to effort is generally easy to ascertain. The consciousness of any distressful feeling too easily induced will be sufficient to place the physician on his guard lest there be some actual enfeeblement present. The presence of an irregular action, as that due to an extra-systole, may cause a good deal of mental distress to the individual by his consciousness of the heart's abnormal action. Recognition of the kind of irregularity and the knowledge attained from long experience, showing that it may not be in itself a sign indicative of heart failure, enables us to reassure the patient with confidence. For instance, I had referred to me a professional football player, a young athletic man of 21, who was greatly distressed by an unpleasant feeling in his heart at times. He had been examined by two doctors, who had recognised an occasional irregularity in the heart's action. He had been forbidden to exert himself, and was given digitalis and strychnia. After three weeks' rest and treatment the occurrence of the distressful feeling continued unabated. When I examined him I found his uneasy sensations were due to the occurrence of extra-systoles. In all other respects he appeared a perfectly healthy man, his response to effort being good, for he played his game vigorously up to the time he had been told to rest. In consequence of being told to cease work because of his heart's abnormal action, he had become depressed and apprehensive. I endeavoured to reassure him, and suggested that all treatment should be stopped and that he should start playing football again, and if at any time he was conscious of his heart stopping he was to pay no attention to it. He at once resumed his engagements and completed his term with no discomfort. He told me that at the beginning of one match he was painfully conscious of his heart's irregularity and felt that he must retire, but reflecting upon what I had told him he dashed into the game and in a few minutes forgot all about his trouble, and he said that he never played a better game in his life. I may add that I have seen individuals, young and middle-aged, in whom extra-systoles occurred at intervals, and have watched them for years and have never seen any one who was restricted in his work on their account. The same line of observation when applied to what are usually called cases of valvular disease will reveal features of real significance. The manner in which the individual responds to effort will be found to enable us to recognise those in whom the heart muscle has escaped damage and those in whom the disease is gradually and surely extending, impairing the functional efficiency of the muscle and embarrassing it in its work by interference with the flow of blood.

In searching for information in regard to the significance of murmurs, while the appreciation of how the heart responds to effort may give information as to the integrity of the heart muscle where it has escaped damage, it requires very careful inquiry to realise the extent of the damage when the heart's efficiency is impaired. The degree of limitation of the field of cardiac response to effort must be correlated to the changes revealed in the heart by physical examination, and an estimate formed in regard to the rate of progress when the lesion is not stationary. This entails an inquiry into the history of the patient to find the date of the initial infection, and an estimate of the extent of the changes and the rate at which they have progressed from the evidence afforded by a physical examination. Thus, for instance, in mitral stenosis the date at which the lesion began may be referred to an attack of rheumatic fever some years previously. Recognising that mitral stenosis does not arise as an acute condition, except when due to vegetations on the valves, but is the result of a process that proceeds at a varying rate in different individuals, we can get fairly trustworthy evidence by the character of the murmur. As the narrowing of the orifice proceeds we shall find changes occurring: first it may be a thrill, presystolic in time; then after a period, it may be of years, we find a presystolic murmur, which becomes more and more accentuated and prolonged as the narrowing goes on. The mitral orifice still becoming narrower produces a diastolic murmur, short at first, but gradually becoming lengthened until the whole diastole is filled by murmurs. In these stages a reference back to the primary infection gives an idea of the rate of progress. Coincident changes affecting the heart muscle may be appreciated by noting the response to effort and changes in the size of the heart, and finally in the presence of auricular fibrillation. It will be found that in all these cases there is a distinct relation between the amount of work force and the degree of impairment of the heart's efficiency, due to the lesion in the muscle and valves.

I find this method of valuation of the greatest service also in cases of angina pectoris. If the statement which I have

placed before you is accepted, that the only real test of the integrity of the heart muscle is its power to respond to effort, and that the amount of effort that can be undertaken without distress affords a basis for estimating the degree of impairment, we are at once placed in a position to obtain a fair conception of the gravity of any case of angina pectoris. Some men between 50 and 60 years of age, who are actively engaged in business, are seized with all the typical symptoms of angina pectoris. Recognising how anxiously this condition is viewed, it is necessary to form an opinion as to the gravity of the condition. Putting aside all theoretical considerations as to the manner of the production of angina, let us consider it from a useful and practical point of view. If we look upon the sensations in angina pectoris as being in their nature a part of the protective mechanism, and the evidence of an exhausted heart muscle, however this exhaustion may have been induced, we obtain the grounds for a reasonable prognosis and a sensible line of treatment. In all people as years advance changes of a degenerative nature occur. So far as the heart is concerned, these may take place apart from any conspicuous lesion. On inquiry we shall find almost to a certainty that the attack of angina is not the first sign of heart exhaustion. If closely interrogated, patients will invariably reveal that some time previously, even five to ten years before, they were conscious at times of sensations of a disagreeable kind on exertion, which they ignored, continuing their work. These sensations indicated that at that time the periods of rest were not sufficient to restore the exhausted muscle, and that even then some slight changes were going on in the muscle which impaired its efficiency. With this impairment the individual still worked as hard as when in the flush and vigour of manhood. Exhaustion in the first instance being ignored, finally becomes so extreme that it culminates in an attack of angina pectoris. If this view be acted upon, and if it be recognised that the muscle is exhausted because the periods of rest are not sufficient to restore the work force, we find out the essential cause of the suffering. It is necessary to recognise whether the conditions producing the attack are removeable or permanent. A careful investigation may reveal that excessive work, worry, or sleeplessness has prevented recuperation. On the other hand, other factors may have contributed to the heart's embarrassment, such as poisoning from tobacco or alcohol. By the removal of these causes the heart may be restored to such efficiency that the individual leads a useful life at a lower level, with a prospect of attaining the allotted span. If the degenerative changes inducing the attack are more advanced, then it will be found that the recovery is partial and delayed, so that the degree of recovery is often an indication of the actual damage to the heart muscle. In other cases of angina pectoris—such, for instance, as when the attacks are readily provoked by exertion after meals—a due appreciation of the functional activity of the heart will be helpful. In some cases, when the attacks come on after a meal, the individual cannot at first walk 50 or 100 yards without being distressed. This may be repeated a few times, and then he may be able to walk 5 or 10 miles with no distress. This fact indicates that there is a good deal of healthy heart muscle present and that the attacks are provoked by the introduction of an additional factor, a full stomach, which embarrasses the heart for the time being.

Auricular fibrillation is a condition that not infrequently induces an extreme amount of heart failure, which may speedily terminate in death. In such cases the exhaustion is so readily induced that no one could overlook the gravity of the condition. On the other hand, we find all degrees of limitation, some patients having little or no limitation of the field of cardiac response. The extreme irregularity in these cases is often viewed with alarm, but there are evidences present in every case which enable a proper estimate to be formed, such as the rate, the presence or absence of objective signs of heart failure. In the absence of such objective signs the manner in which the individual responds to effort will invariably indicate how far the heart muscle is able to overcome the embarrassment induced by the irregular action, and the extent which the patient can exert himself within the limits which cause distress will afford a valuable indication as to the state of the heart muscle.

### LIMITATIONS OF THE METHOD.

I do not pretend that this view of estimating the degree of heart failure is of universal application, for there are many heart affections to which it is not applicable, as in acute diseases, or when the heart is invaded by some microbe or toxin, or where the individual has been weakened from some other ailment, as the various anæmias. It is mainly applicable to chronic cases with gradual changes impairing the capacity of the organ, and it is useful in differentiating those symptoms which have a serious bearing from those with little or no significance. Further consideration may reveal its unsuitability in other ways and may lead to its modification. Such a view as this cannot be tried and judged on theoretical grounds or by the testing of a few cases for a brief period, but must be carefully applied to a large number of individuals, and those individuals watched and examined at intervals over periods extending from 20 to 30 years. Since this view only impressed itself upon me 10 or 15 years ago, it will be seen that I cannot have given it that thorough test which it requires. It has, however, revealed so much to me and has been of so much practical help that I feel justified in putting it forward, for the life and experience of one observer is too limited to settle a matter of this importance.

### TREATMENT.

The conception of heart failure and the method of estimating the value of symptoms which I have attempted to describe have been of the greatest value to me in treating patients with heart affections, and in elucidating the action of remedies in a research which I have been carrying on for some time. Pursuing my work until lately amongst individuals, most of whom were actively engaged in manual labour, the subject of treatment was all-important, as they would not desist from work unless actually compelled by force of circumstances. I therefore saw many people whom on theoretical grounds I considered unfit for work who continued their work in spite of warnings and were little the worse. This caused me to look more carefully into the circumstances of each case; to find out why, for instance, hearts damaged by old rheumatic lesions were capable of so much work; and when I came to appreciate the reason, there was also placed in my hands a reasonable line to follow in managing such cases during their temporary attacks of heart failure. Recognising that the exhaustion of the heart was due to an insufficient period of rest, a full inquiry into all the patient's circumstances frequently led to the recognition of many events in the daily life which by modification would save the heart much exertion, while the business or work of the individual could still be continued.

From this arose the first and most important indication—namely, that an individual affected by a heart lesion which diminishes his work force must live within the limits of his powers. This can only be done by the period of rest being sufficient to restore the exhaustion of the work force. In this way alone will heart failure be avoided and a reasonable prospect of longevity be attained. Treatment need not be given in the presence of any abnormal conditions, unless there is distinct evidence of heart exhaustion. Where there is such evidence then the treatment, in the first place, must consider the possibility of diminishing the amount of daily effort.

From the point of view that heart failure arises because the period of work is so great that the period of rest cannot restore a sufficient amount of work force, the essential principle of treatment becomes self-evident—namely, rest. Though the beneficial effects of rest are invariably acknowledged they are far from being sufficiently appreciated. When we scrutinise any system of treatment it will be found that the success of the treatment depends entirely upon the amount of rest the heart has procured. It seems probable that drugs which have such a potent and beneficial effect upon the heart as those of the digitalis group owe their good effect mainly to the amount of rest procured by the slowing of the heart's rate. At all events, in the researches I have been carrying on for some years the cases which have obtained the greatest benefit from the digitalis were those in which the heart's rate was decreased by the digitalis. I have repeatedly seen relapses of patients coincide with an increase in the pulse-rate when the digitalis was diminished or left off. The vast majority of patients in whom digitalis acts with such marvellous effect in slowing the rate and improving the condition are those affected by auricular fibrillation. The reason that digitalis has acquired such a reputation as a cardiac drug is due to the peculiar susceptibility of patients with auricular fibrillation, and practically

all recorded cases illustrating the remarkable effects of digitalis are cases of auricular fibrillation. Hearts with the normal rhythm are seldom so sensitive to the digitalis, and in them there is not the same tendency to slowing of the rate.

While in all successful systems of treatment rest is always prescribed, its good results are not always recognised, because at the same time some special agent is employed, such as a drug, a bath, or an exercise, and the good results are attributed to the special agent. It is for this reason that the therapy of heart affections is loaded by such an array of therapeutical measures, the vast majority of which have little or no effect on the heart. Many of these agents are not only given when rest has also been prescribed, but they are given when there is no heart failure, and only because the physician has detected some anomalous symptom. It is a matter of everyday experience to find individuals with a murmur or an irregularity, who for years have been subjected to treatment and made to visit health resorts for a condition which neither indicates heart failure in the present nor its likelihood in the future. The fact that heart failure did not arise has probably been attributed to the precautionary measures. From this comes the belief in the efficacy of many of the drugs and methods in use to-day. When many of these vaunted remedies are carefully investigated their uselessness becomes evident. Take, for instance, the present-day belief in the effect of strychnia on the heart, a belief held not only by a great many physicians but which exercises an almost superstitious regard in the mind of many of our surgical brethren, in whom the faith is so deeply rooted that they will not undertake an operation without the preliminary ceremonial rite of a hypodermic injection of strychnia. I have sought in vain for the slightest evidence of the effect of medicinal doses of strychnia upon the heart, and have searched the literature on the subject and have not found one single reliable instance demonstrating the effects of medicinal doses. Pharmacologists have repeatedly examined with the minutest care the effects of medicinal doses of strychnia upon the heart in experiment, and have failed to obtain a result of any kind. So it is with a great many other drugs and methods, with the unfortunate result that the effects of drugs that are really of service are never properly appreciated.

We might not care so much for these erroneous beliefs were it not that they blind the profession to the great want of suitable agents in treating real and serious affections of the heart. There are many conditions in which rest alone fails to benefit the heart, as when the heart is invaded by a toxin, or rendered irritable from some lesion in the heart itself, or when the ventricle in heart-block contracts so seldom as to endanger life. For these and many other conditions we are absolutely without any means of meeting the impending and actual danger, and yet we are kept in ignorance of this fact, because writers pour forth a stream of remedies for any and every kind of heart trouble. Were we more alive to our own limitations, we should be more industrious in the search for real and valuable remedies.

# THE INDICATIONS FOR, AND TECHNIQUE OF, CÆSAREAN SECTION

## AND ITS ALTERNATIVES, IN WOMEN WITH CONTRACTED PELVES, WHO HAVE BEEN LONG IN LABOUR AND EXPOSED TO SEPTIC INFECTION.[1]

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AFTER my visit to the Congress at St. Petersburg I realise fully the difficulty of this question. Let me first draw attention to Table I., which shows the enormous difference between the mortality of the "clean" and the "suspected" cases.

It will be seen that the cases in Groups A and B had a death-rate of only 2·9 per cent., whereas in Groups C and D the mortality was 17·3 per cent. In Group D the death-rate was as high as 34·3 per cent. (22 deaths in 64 cases). To lessen this mortality Porro's Cæsarean hysterectomy, symphysiotomy, pubiotomy, and more recently (1907) extra-peritoneal Cæsarean section and Sellheim's utero-abdominal fistula have been adopted for these "suspect cases."

TABLE I.—*Showing the Mortality of Cæsarean Operations for Contracted Pelvis where Details are given as to Possible Infectivity (1891 to 1910).**

| — | Condition. | Cases. | Maternal deaths. | Percentage mortality. |
|---|---|---|---|---|
| A | "Not in labour" ... ... ... ... | 245 } 469 | 9 } 14 | 3·6 } 2·9 |
| B† | In labour, membranes intact ... | 224 } | 5 } | 2·2 } |
| C | In labour, membranes ruptured | 166 } 230 | 18 } 40 | 10·8 } 17·3 |
| D | Frequent examinations or attempts at delivery ... ... | 64 } | 22 } | 34·3 } |

* From Dr. Routh's collection of 1282 cases, Journal of Obstetrics and Gynæcology of British Empire, January, 1911.
† B, or "onset of labour," or "in labour but in hospital some days."

The disadvantages of the extra-peritoneal operation in septic cases may be enumerated as follows. 1. The uterus, with its large placental site, its decidual surface, and its incised wall, is retained as a channel for infection. 2. The peritoneum is bruised, and when stripped off, necessarily loses to a large extent its blood-supply, and is liable to become less resistant to septic processes. 3. The under surface of the peritoneum, thus to some extent devitalised and injured, is during the operation constantly in contact with any septic germs present *in utero*. As a result a large percentage of the fatal cases die from peritonitis. 4. A large area of connective tissue is opened up and exposed to infection.

Sellheim's utero-abdominal fistula operation may help to save lives in septic cases where primary union of the uterine wound fails, as in a case of my own (1045) in 1909, where a utero-abdominal fistula accidentally formed. Attempts had been previously made to deliver by forceps, but by such experienced accoucheurs that I hoped infection was absent. When the child was extracted by Cæsarean section I found the head abraded, and in a few days septic sloughs and abscesses appeared both on the child's head and over the abdominal wound, and a utero-abdominal fistula developed. Three months afterwards appendicitis supervened, and at the operation for that condition by Mr. Stanley Boyd the fistula was closed. This patient emigrated to Canada a hundred miles away from a town and writes that she is again pregnant.

There is no consensus of opinion abroad, every alternative to classical Cæsarean section being recommended by their votaries, but many are coming round to the British view that septic cases should not be treated by extra-peritoneal Cæsarean section or by pelviotomy, but by either embryotomy or some form of hysterectomy—the original Porro operation being usually preferred abroad.

There is no clinical method by which we can *in early cases* in the absence of pyrexia, offensive discharge, &c., diagnose with assurance whether a woman is already infected or not. It is often pure guess-work. I wish, therefore, to discuss the subject from the bacteriological point of view, for much advantage will be gained if treatment of these septic cases can be placed upon a scientific basis, and if the operation can be safely varied according to the type of the germs found to be present, as was suggested by Bumm, Veit, and others at the recent Congress. These germs may be divided into pathogenic and putrefactive. Pathogenic germs, such as streptococci, not only cause local inflammatory disturbances, but unlike true putrefactive germs multiply in the blood. If they infect the uterine wound in Cæsarean section they will prevent primary union, and will then infect the peritoneum. Putrefactive germs if present *in large numbers* will probably also prevent primary healing of the wound, for Arnold Lea states that cultures of anaerobic putrefactive organisms injected hypodermically into animals produce localised suppuration often followed by extensive gangrene.

The most serious cases of puerperal infection are due to the presence of streptococci,[2] or streptococci and bacillus coli combined. Pneumococci, staphylococcus pyogenes aureus, and gonococci are also dangerous. Staphylococcus pyogenes albus and bacillus coli are less virulent germs.

[1] Being an address introductory to a discussion at the Obstetrical and Gynæcological Section of the Royal Society of Medicine, Feb. 2nd, 1911.

[2] Transactions of the Obstetrical Society of London, vol. xlvii., p. 11.

Foulerton and Bonney failed to find anaerobic germs, which would include ordinary saprophytic organisms, in 53 out of 54 cases of puerperal fever. On the other hand, Krönig found them in 18 per cent. of 179 cases, and Whitridge-Williams in 15 per cent. of 151 cases. The actual danger from the presence of putrefactive germs is not yet exactly known. At the Congress Bumm said: "The measure of the danger depends upon the kind of infection. The decomposition of the liquor amnii by ascending putrefactive germs is less dangerous than the presence of streptococci, the ample appearance of which in the liquor amnii leaves no doubt as to the existence of a virulent infection."

Bumm says that the presence of putrefactive germs prevents the primary union of the muscle wound of the uterus and causes fatal peritonitis, and he adds: "If the amnion has been ruptured for some time and there is even only a slight elevation of temperature classic Cæsarean section is fatal." He continues: "In performing supra-symphysary Cæsarean section, if one succeeds in finishing the obstetric act extraperitoneally, one has the possibility, by ample draining of the cellular tissue wounds, of avoiding the danger of a general infection in all those cases where one has to deal with a simple putrefactive decomposition of the liquor amnii. If, however, the uterus at the time of the operation already contains streptococci, a fatal result may follow by progressive phlegmon of the pelvis, septic thrombophlebitis, or by the migration of the germs through the thin layer of peritoneum covering the utero-vesical excavation."

In reply to a letter from me to Professor Bumm, asking for further information, Dr. Edward Martin replied in English on Nov. 9th last:—

> On behalf of Professor Bumm I answer the question of your letter. In every case of contracted pelvis *without* fever we have to perform the delivery by suprapubic section. When the waters are passing away we make a bacteriological examination by microscope. In all cases of bacteria of any kind we object to the section and make the perforation of the child. In all suspicious cases, when the patient has been examined outside of the Klinik at several times, or when she has elevated temperature, *when germs are not found* we make it a rule to perform suprapubic section only, but in such cases we make use of drainage. When bacteria are found in fever cases we perforate the child.

Veit says the danger of Cæsarean section consists in the infection by virulent germs or in the penetration of germs of putrefaction from the genital canal into the abdominal cavity with the blood or liquor amnii. With virulent germs he considers all varieties of Cæsarean section inadmissible. The penetration of germs of putrefaction into the abdominal cavity, he considers, can be prevented by various methods of extraperitoneal Cæsarean section, and also to a large extent by eventration of the uterus before incision in ordinary Cæsarean section with careful packing round the uterus, and he prefers in such cases Fritsch's transverse fundal incision.

When a parturient woman is said "to have been exposed to infection," as we are now discussing, her danger must largely depend upon the variety and virulence of the infecting organism, as well as by the length of time which has elapsed since the infection, and the presence of abrasions as absorbent areas. If the membranes are ruptured and the amniotic cavity has been infected the micro-organisms will rapidly multiply there, for the liquor amnii is a suitable culture medium.

With our present imperfect knowledge of the interaction between different kinds of bacteria and their power of increasing or reducing each other's activity and virulence it is evident that in the presence of both virulent and putrefactive organisms one would have to treat the case from the point of view of the more virulent germs. It is not always necessary to obtain swabs from the cavity of the amnion, for if a case has been frequently examined, or forceps have been used, and potentially virulent germs are found in the cervix or upper vagina, it is manifest that they must have been carried up into the uterus and that the liquor amnii is infected. Apart from the introduction of an examining finger or instrument into the uterus, Arnold Lea says that the cervical plug of mucus is usually able, owing to the presence of phagocytes, to prevent vaginal streptococci, &c., from infecting the amniotic cavity.

It is evident that if the technique of these Cæsarean operations is to be varied according to the presence, absence, or variety of the infecting germ we must have a report presented to us within an hour or so of the "suspect case" being admitted to hospital. We cannot wait for cultural examination.

Probably the greatest difficulty in the bacteriological investigation is to be able to recognise the dividing line between saprophytic and pathogenic germs, for, as Arnold Lea says, the same organism may under different conditions entirely change its character. Thus, the streptococcus pyogenes may exist as a pure saprophyte in the genital tract, whilst some anaerobic putrefactive bacteria may become highly infective. It is also apparently true that if a puerperal uterus be invaded by streptococci, acting at first solely as pure saprophytes and temporarily only causing toxæmia (sapræmia), conditions may arise (? diminished resistance in the patient) in which the streptococci may become infective and true septicæmia result. If streptococci are found we must therefore assume they are virulent and act accordingly. There is at present no rapid method by which we can differentiate between the 38 brands of streptococci said to exist. Subject to these limitations, however, I believe that sufficiently reliable reports from the microscopic examination of these swabs can be obtained.

Mr. A. N. Leathem, bacteriologist at Charing Cross Hospital, states "that films could be made and stained from uterine swabbings, and if the organisms were present in considerable numbers a reliable report as to the presence of streptococci, staphylococci, or pneumococci could be given within half an hour. If bacilli were present it would be more difficult to decide as to the presence of B. coli, although in some cases it would probably be possible to say that the bacilli present in the films were all saprophytic." I also put the case to Sir Almroth Wright, who writes: "It seems to me that in such a case as you refer to it would be well worth while making a bacteriological examination, for it might be possible, in cases where there was a considerable amount of infection, to detect and identify the microbes by mere microscopic examination. In the majority of cases it would, of course, be impossible to detect or identify the microbes without awaiting the results of cultures."

The next point was to find out by a series of tests whether a report obtained from the examination of films was confirmed by a further examination of cultures from these same swabbings—whether, in fact, the report from the film examination was sufficiently reliable to be acted upon. For this purpose Mr. Leathem has reported upon the examination of swabbings, first of stained films, and subsequently of the cultures from the same swabs. The first five of these are given in the appendix to the paper. As my object was mainly to discover whether the film results were confirmed by the culture tests I have, in the absence of Cæsarean section cases, taken swabbings from the cervix and uterine body of other cases. As a result of such investigations (see Appendix) I believe that these rapidly obtained film results when reported on by those who are experts are usually sufficiently reliable to justify us in adopting a particular type of operation according to the variety of micro-organisms found present, though apparently such reports would tend to make one operate radically in some cases where cultural examination would subsequently show it had not been really necessary. On the other hand, both Dr. Banister and Dr. R. D. Maxwell, who have also kindly made tests, tell me that in a few cases they failed to find streptococci in the films, but cultures showed their presence. This, if not very exceptional, would prove a seriously weak point. Presumably the germs were few and stained badly. I hope that in the future greater reliability will be able to be placed upon these film reports—perhaps by more perfect methods of differential staining.

### *Indications for Treatment.*

The cases we are considering are "suspect cases" and may roughly be divided into five classes:—

1. *Cases which have been exposed to infection, but where the membranes are not ruptured.*—If germs had been carried into the vagina during previous examinations they could almost certainly be destroyed or rendered harmless by copious vaginal antiseptic douches.

2. *Second type of case. In labour some hours, membranes ruptured, vaginal examination made, no feverishness, no offensive discharge. The liquor amnii is found to be sterile.*—Here a classical Cæsarean section could be safely done, though some would prefer to eventrate the uterus before incision as the woman has been previously examined.

3. *Third type of case. In labour some hours, membranes ruptured, examinations made or attempts at delivery, some offensiveness of discharge, possibly some feverishness.*—We will assume that saprophytic organisms are found in the liquor amnii but no pathogenic organisms. Primary union of the uterine wound might fail in these cases, and unless a utero-abdominal fistula formed fatal peritonitis would then follow. This group may perhaps be represented by Cases 811 and 841, both of which women had been long in labour and were treated by Cæsarean section and died from sepsis. In each case when the amniotic cavity was opened it was found to contain air which was very fœtid. Unfortunately no bacteriological test of the liquor amnii appears to have been made in these cases. Both children were alive at birth, but one, upon whom forceps had been used, died on the second day.

Extraperitoneal Cæsarean section and all forms of pelvi-otomy being, in my opinion, better avoided for septic cases, and classical Cæsarean section being very fatal (Table I.), there remains only craniotomy or some variety of Cæsarean hysterectomy.

I wish here to speak of an alternative prophylactci measure—intra-amniotic irrigation—adopted by Dr. Maxwell of Queen Charlotte's Hospital in doubtful cases of infection where the membranes are ruptured. A soft pewter or other pliable tube is passed up per vaginam to the fundus uteri, and the amniotic cavity and incidentally the fœtal skin are freely irrigated with normal saline solution at 100° F. Possibly a saturated boric solution would be more useful if micro-organisms were present. The method is, of course, available in all degrees of pelvic contraction. It might also be usefully employed before craniotomy to dilute any suspected infection in the amniotic cavity and so reduce the risk of infection of the tissues if they were abraded during the operation. Whether it is possible to so thoroughly irrigate the amniotic cavity that all putrefactive organisms can be washed away or rendered harmless is only a question which can be settled by experience. If most of the liquor amnii had drained away, and especially if the uterine muscle were contracted down on the child, such irrigation could only be very partial. The difficulty, too, of dislodging germs from fœtal apertures and irregularities, or those luxuriating in a vernix caseosa is evident. Still it is an additional method at our disposal and may prove of great value. In any case it must dilute the poison and, so to speak, "lessen the dose." If Maxwell's method does *not* prove reliable, and there is no constitutional or bacteriological evidence of infection by potentially virulent pathogenic organisms, it is probable that craniotomy with intra-uterine irrigation would be the best treatment, for at this stage the infection is recent, the germs therefore few, and the placental site and decidua are protected by the membranes from infection. If, on the other hand, Maxwell's method or some modification of it should prove serviceable, it would largely prevent craniotomy with living children in those "suspect cases," and would enable Cæsarean section to be done safely in cases where it could be shown bacteriologically that there was no virulent infection present.

4. *Groups 4 and 5. In labour many hours, membranes ruptured, frequent examinations made, or attempts at delivery. Pathogenic germs of potential virulence found. Constitutional evidence of infection.*—Here it is probably correct to assume that Maxwell's method would be useless, and that such rapidly multiplying and invading pathogenic germs as streptococci, &c., could not be successfully dealt with, even in a case very recently infected, by any irrigating fluid which was not so powerfully antiseptic as to cause serious injury to the fœtus.

Craniotomy would no doubt be preferable to such futile attempts to destroy the infecting germs, but it must be remembered that abrasions of the cervix and vagina during the extraction of the mutilated fœtus after craniotomy are almost inevitable, and if virulent germs such as streptococci are present the maternal tissues might become infected, and septicæmia would occur. Probably, therefore, if such germs were proved to be present a radical operation would be preferred. In other words, where there are constitutional evidences of sepsis, and potentially virulent germs are found, some form of Cæsarean hysterectomy is indicated. A few words regarding the relative advantages of the two varieties of subtotal hysterectomy and abdominal panhysterectomy in virulent infection are here necessary.

A. First as regards *supravaginal hysterectomy with intraperitoneal treatment of the stump.*—Here let me draw your attention to Table II., taken from my recent report upon Cæsarean section.[3]

TABLE II.—*Showing Method of Treatment* of the 230 Cases in Table I. (Groups C and D) which may have been exposed to Infection (1891 to 1910). "Suspect Cases."*

| — | — | Cases. | Cæsarean section only. | Deaths. | Supravaginal hysterectomy, intraperitoneal stump. | Deaths. |
|---|---|---|---|---|---|---|
| C | In labour, membranes ruptured ... ... ... ... | 166 | 158 | 18 (11·4 per cent.) | 8 | — |
| D | Frequent examinations or attempts at delivery... | 64 | 58 | 22 (37·9 per cent.) | 6 | — |
| | Total ... ... ... | 230 | 216 | 40 (18·5 per cent.) | 14† | — |

* The early cases (1867 to 1890), where supravaginal hysterectomy with extraperitoneal treatment of the stump was the technique adopted, cannot be tabulated owing to want of sufficient details regarding the "rupture of the membranes."

† Cases 336, 358, 370, 400, 404, 405, 432, 494, 568, 713, 736, 751, 843, and 1255.

This table divides the 230 "suspect cases" in Groups C and D of Table I. into two other groups according to their treatment by Cæsarean section only, or by supravaginal hysterectomy with intraperitoneal treatment of the stump. It will be seen that in Group C, where the membranes were already ruptured, the mortality of Cæsarean section alone was 11·4 per cent., and in Group D, where attempts at delivery or frequent examination had been made, the mortality of Cæsarean section alone was 37·9 per cent. In these two groups C and D 14 cases were treated by supravaginal hysterectomy with intraperitoneal treatment of the stump, and of these all the mothers survived and 11 of the children. Ten of these 14 "suspect" or infected cases which recovered were operated upon in Glasgow by Cameron, Jardine, and Munro Kerr, the others by Berkeley, Brewis, and Purslow. It is probable that several of these cases were infected by pathogenic organisms, and if so it makes the results of the radical operations more striking, especially when, as I show in my report read at St. Petersburg, the mortality in 39 other cases of contracted pelvis treated by this radical operation as a routine method there were seven deaths = 17·9 per cent.

If the cervix is left in these infected cases it should be rendered as harmless as possible, either by applying a strong antiseptic application to the cervical canal from above, or a strip of gauze may be passed downwards into the vagina through the cervical canal. The covering of the stump with peritoneum should be very accurately and carefully executed.

B. *Supravaginal hysterectomy (Porro's), with extraperitoneal treatment of the stump.*—This method more effectively shuts off the peritoneal cavity from the infected cervix and vagina than any other variety of hysterectomy, in addition to which no ligatures are left in the peritoneal cavity. This variety of subtotal hysterectomy is strongly advised by Spencer and others in such septic cases as inoperable cancer of the cervix complicating labour. There were 28 cases of contracted pelvis in my collection treated by Cæsarean hysterectomy with extra-peritoneal treatment of the stump with 4 deaths, a mortality of 14·2 per cent., which compares favourably with the 13·2 per cent. mortality of 53 cases dealt with by intraperitoneal treatment of the stump. When it is further remembered that the cases treated in this way were operated upon mainly before 1895, when many were septic before coming under notice, the comparative safety of the operation with extra-peritoneal treatment of the stump is highly suggestive. This variety of subtotal hysterectomy is recommended in these cases by Brandt, Schauta, Pestalozza,

[3] Journal of Obstetrics and Gynæcology of the British Empire, January, 1911.

and others abroad, and seems especially indicated for gonococcal infection.

C. *Abdominal panhysterectomy.*—This operation is theoretically the ideal one for cases infected with potentially virulent pathogenic organisms, as it involves removal of the infected glandular cervix. There are, however, risks in the operation as now done.

1. One is the difficulty of performing the preliminary operation of Cæsarean section without infecting the peritoneal cavity during its performance, for panhysterectomy without a preliminary Cæsarean section cannot be performed so rapidly that the child would have a fair chance of survival if it were extracted after the removal of the uterus, even by Doyen's method, where the uterine vessels are divided at a late stage. To prevent infection of the peritoneum during the delivery of the child the uterus must first be eventrated and the abdominal incision temporarily closed, and the peritoneal cavity shut off by packing round the uterine neck. A fundal incision should then be made into the uterus, the child extracted, and the uterine wound accurately closed again. Panhysterectomy can then be performed, Wertheim's clamps being used to prevent infection from the vagina; or, to prevent the shortening of the vagina which this operation involves, the uterus can be removed by Doyen's method, the cervix having been previously closed by ligatures as advised by Spencer.

2. The risk of infection of the peritoneum from the septic vagina after the uterus is removed is more difficult to avoid. If Spencer's method of ligation of the cervix were adopted as a preliminary to the operation the vagina could be sterilised at the same time, perhaps by swabbing with tinctura iodi, for effective sterilisation after the hysterectomy would be difficult.

The treatment of the divided end of the vagina is important. Personally, I think its cut edges should be inverted and sutured, a small opening being left in the centre of the canal for a gauze drain.

The treatment of the peritoneum on the pelvic floor is also important. Should it be stitched across transversely by continuous Lembert sutures, or should it be closed by Spencer's method of purse-string suture, or should it be left open to drain per vaginam, and if so should a gauze drain be used?

The success of panhysterectomy in these cases will depend upon a technique perfected in these small details.

In conclusion, I would say that I am not without hope that a rapid bacteriological examination of films prepared from the liquor amnii or cervical contents in "suspect" cases when the membranes are ruptured will enable the treatment of these cases to be put on a more scientific basis. If so, classical Cæsarean section would be performed with perfect security if the fluid were sterile; Cæsarean section, preceded by some variety or some evolution of Maxwell's intra-amniotic irrigation and by eventration of the uterus, might be considered safe if non-pathogenic germs were found; and a radical hysterectomy would be considered desirable if pathogenic micro-organisms were discovered. It is possible that such a scientific basis may do away with the need for craniotomy with living children in well-organised obstetric clinics, but craniotomy would still be required in general practice where prompt bacteriological investigation and special technical experience might not be forthcoming.

## APPENDIX.

*Tests made by Mr. Leathem to ascertain whether Examination of Films from Cervix Uteri, &c., was sufficiently reliable to be acted upon.*

| No. of case. | Variety of case. | Report on examination of films made from swabbing. | Time taken for examination of films. | Result of cultural examination. | Time taken for cultural examination. |
|---|---|---|---|---|---|
| 1 | Swabbing from vagina, taken some days after vaginal hysterectomy for fibrosis uteri; discharge was at the time offensive, with an absorption temperature of 101° F.; patient recovered well. | Films crowded with different varieties of bacilli, both Gram-positive and Gram-negative; Gram-positive diplococci (? staphylococci) present; pus cells present. Conclusions: Staphylococci may be present; *Bacillus coli* may be present; pus cells are present, and therefore the presence of pyogenic organisms is to be suspected. | 15 mins. | Cultivation produced growths of *Bacillus coli* and *Staphylococcus aureus* with saprophytic bacilli. | 24 hours. |
| 2 | Swabbing from endocervix just before application of forceps; patient in second stage for 20 hours; frequent vaginal examinations had been made. | Films showed a large number of cocci, all Gram-negative, and a few Gram-negative bacilli; no pus cells. Conclusions: The cocci are probably non-pathogenic; their being Gram-negative shows that they are not staphylococci, streptococci, or pneumococci; they might be gonococci, but the absence of pus cells is against this; very few bacilli are present, but these are Gram-negative, and the presence of *Bacillus coli* cannot be excluded with certainty. | 15 mins. | No growth of any pathogenic organism was obtained. | 24 hours. |
| 3 | Swabbing from endocervix; normal labour, with delayed second stage; some vaginal examinations made. | Films showed a very small number of bacilli, all Gram-positive; no pus cells. Conclusions: Probably no pathogenic organisms present. | 10 mins. | No growth of any bacillus was obtained; two agar plates were planted, and the only growth obtained consisted of four colonies of sarcinæ. | 24 hours. |
| 4 | Swabbing from endocervix; puerperal septicæmia 12 months previously; metrorrhagia last few months; curettage; much adenoid tissue removed. | Films showed a few bacilli, mostly too small to be *Bacillus coli*, and all Gram-positive; a few Gram-positive diplococci; pus cells present (few). Conclusions: *Bacillus coli* probably not present; the Gram-positive diplococci may be staphylococci. | 16 mins. | Cultivation produced Gram-positive bacilli (3 varieties, all apparently saprophytic) and a few colonies of sarcinæ; no staphylococci. | Planted on Friday; no visible growth on Saturday; then not examined until Monday. |
| 5 | Swabbing from external os before curettage for somewhat offensive leucorrhœa and metrorrhagia. | Films showed many Gram-staining cocci, mostly in pairs; one chain of 4 cocci and one of 5 cocci seen; the bacilli are both Gram-positive and Gram-negative; some of the diplococci resembled pneumococci in shape, and a film was therefore stained with capsule stain, but no capsule was seen. Conclusions: *Bacillus coli* may be present; staphylococci and streptococci may be present. | 17 mins. | Cultivation produced growths of *Bacillus coli*, streptococcus, and a few colonies of *Staphylococcus aureus*. | 24 hours. |

NOTE.—Founded on the indications stated in the paper, Nos. 1 and 5 would have been treated by hysterectomy, Nos. 2 and 3 by Maxwell's irrigation, eventration of the uterus, &c., and Cæsarean section, and No. 4 by either craniotomy or hysterectomy, after consultation with the patient and her husband.

# AN INQUIRY INTO THE NATURE OF THE SKELETAL CHANGES IN ACROMEGALY.[1]

BY ARTHUR KEITH, M.D. ABERD., F.R.C.S. ENG.,
CONSERVATOR OF THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

I WAS drawn into the study of acromegaly by an accident. While revising the series of specimens which illustrate variations of the skull in the Museum of the Royal College of Surgeons of England my attention was drawn to one which illustrated over-development of cranial characters. On closer examination it became apparent that this skull showed the features of acromegaly, a diagnosis which was confirmed by my colleague Mr. S. G. Shattock. The sella turcica, although showing no signs of a tumour, was large, measuring 20 mm. in its front-to-back diameter, 20 mm. from side to side, and 7 mm. in depth; the corresponding measurements in normal male skulls are 10 to 12 mm., 14 to 15 mm., and 8 mm.[2] In a case adjoining that in which the series illustrating variations of the skull is placed are shown the cranial forms of Paleolithic man—the most ancient type of European yet discovered and best known by the specimen found at Neanderthal in 1857. In this series is also placed the Gibraltar cranium which was brought home by a former President of the College, Mr. George Busk, and presented by him to the Museum in 1868. On searching the records of the Gibraltar Scientific Society last year Colonel Kenyon, R.E., came across an entry which shows that the Gibraltar cranium was discovered in 1848, nine years before the Neanderthal example, which is usually regarded as the first known representative of Paleolithic (Neanderthaloid) man.

### *The Resemblance of Acromegalic to Neanderthaloid Crania.*

That is a side issue, however; the main point is the marked resemblance of the acromegalic and Neanderthaloid crania; in both types the skulls are particularly long and low in proportion to the length; the eyebrow ridges are prominent; the muscular markings are pronounced; in both, the facial parts of the skull are long and wide. The resemblance is close enough to suggest the possibility of obtaining some light on the nature of Neanderthal man by studying the remarkable disease known to medical men as acromegaly. If a pathological disturbance of the pituitary could produce the one condition it seemed possible that a heightened physiological development might produce the other. Those most familiar with craniological methods know best how empirical they are and the need of applying more rational principles to the elucidation of the problems of head form. Acromegaly seems to offer a clue to some of the circumstances which determine the shape of head and face.

### *The Theory that Acromegaly is an Atavistic Manifestation.*

The detection of a resemblance between the Neanderthaloid and acromegalic crania is not a new observation. A brief history of the acromegalic skull which I have already alluded to will make clear how old the suggestion is. The specimen came into the possession of the celebrated craniologist, Dr. Barnard Davis,[3] about the middle of last century; before then it was part of the stock-in-trade of a phrenologist in the Strand. In 1863, when Huxley[4] brought the primitive nature of the Neanderthal cranium before the British public by a masterly analysis of its characters, Dr. Barnard Davis produced the phrenological skull as proof that a similar formation could be found amongst modern men. That was nearly 30 years before the condition of acromegaly was recognised; Pierre Marie's[5] classical description appeared in 1886. Dr. Barnard Davis had recognised the resemblance between the head form of Neanderthal man and that of the acromegalic. The chief features of the Neanderthaloid and acromegalic skulls are also seen in the chimpanzee's and especially in the gorilla's skull. Hence Dr. W. A. Freund,[6] the veteran physician of Berlin, when he described a case of acromegaly in 1872 under the name of *Macrosomia partialis*, definitely mentions the anthropoid nature of the cranial characters of the acromegalic and inclines to the belief that they are a re-appearance of ancestral traits. The influence of Darwin is there seen at work. Later, Professor D. J. Cunningham,[7] who gave the first (1878) full description of a case of acromegaly in this country, and was also the first to recognise the relationship between acromegaly and giantism, was struck by the anthropoid nature of the acromegalic cranial characters. Dr. Woods Hutchinson,[8] while emphasising the part played by the pituitary secretion in regulating growth of the body, and Dr. Harry Campbell[9] formed opinions somewhat similar to those of Freund and Cunningham.

### *The Theory of Hyperpituitarism.*

The authorities who have written monographs on acromegaly have one and all of them put aside the views advanced by the writers just cited as scarcely worthy of serious consideration. There is a justification for this attitude, for to say that acromegaly is an atavism helps very little to explain the condition. I do not for a minute suggest that the Neanderthaloid race suffered from acromegaly, nor that acromegaly is a resurrection of an anthropoid state. From what is known of the function of the pituitary it may be stated with some degree of assurance that all three—the gorilla, Neanderthal man, and the acromegalic—suffer from that condition which is now known as *hyperpituitarism*,[10] as distinguished from the opposite condition, *hypopituitarism*, where the pituitary secretion falls far below the normal amount. Something is now known of the conditions which stimulate the pituitary to growth and over-secretion. Pregnancy does so; so do castration and thyroidectomy. With the excess of function called forth by these conditions certain growth changes appear in the body of the individual.

The evidence which I propose to bring forward in this paper suggests that at least one of the substances secreted by the anterior or glandular part of the pituitary body is of the nature of a hormone. It renders the osteoblasts hypersensitive to the various stresses which fall on the human skeleton during life. Thus the osteoblasts at the origins and insertions of muscles become increasingly sensitive to the traction of the muscle fibres; the muscular impressions and processes of the skeleton become unduly raised, extended, and emphasised by the formation of new bony matter. The parts and articular surfaces of bones exposed to repeated pressure or tension become the seats of growth.[11] If the epiphyseal lines, the osteoblasts of which appear to be especially affected, are still open, giantism is produced. It is not clearly enough recognised that bone formation is intimately associated with bone absorption. Hunter's[12] description of the growth of the femur will be remembered; as the bone grows in length deposition occurs along the upper surface of the neck and head, absorption along the lower. Thus the head and neck of the femur are laid down and completely absorbed several times during the growth of the individual. In acromegaly we see this coördination between growth and absorption is lost to a certain degree; indeed, especially in the later stages, absorption is more marked than deposition. The pituitary

[1] A paper read before the Medical Society of London on Dec. 12th, 1910, in conjunction with a paper on Acromegaly by Sir David Ferrier (see THE LANCET, Dec. 17th, 1910, p. 1765).

[2] See Boyce, R., and Beadles, C., Journal of Pathology and Bacteriology, 1893, p. 1; Beadles, Cecil, Edinburgh Medical Journal, March-April, 1898; Fitzgerald, D. P., Journal of Anatomy and Physiology, 1910, vol. xliv., p. 231; and Erdheim, J., and Stumme, E., Beiträge zur Pathologischen Anatomie, Ziegler, 1909, Band xlvi., p. 1.

[3] Davis, Barnard: Thesaurus Craniorum, 1867, p. 48.

[4] Huxley, T.: Man's Place in Nature, London, 1863.

[5] Marie, Pierre: Revue de Médecine, 1886, vol. vi., p. 297.

[6] Freund, W. A., Sammlung Klinischer Vorträge, 1889, Gynaekologie, No. 95.

[7] Cunningham, D. J., Journal of Anatomy and Physiology, 1878, vol. xii., p. 294. The same skeleton was fully described by Professor Alexis Thomson in the Journal of Anatomy and Physiology, 1890, vol. xxiv., p. 475.

[8] Hutchinson, Woods, New York Medical Journal, 1900, July 21st, p. 89.

[9] Campbell, Harry, Brit. Med. Jour., 1894, vol. ii., p. 1110, 1895, vol. i., p. 81.

[10] For summaries of our present knowledge of the nature of acromegaly see Sir David Ferrier's paper in THE LANCET, Dec. 17th, 1910, p. 1765; Dr. A. Münzer, Berliner Klinische Wochenschrift, 1910, Band xlvii., p. 341; Dr. Alfred Kohn, Münchener Medizinische Wochenschrift, 1910, vol. lvii., p. 1485; Professor Sternberg's article in Nothnagel's Spezielle Pathologie und Therapie, 1897, vol. vii., p. 11; Dr. Harvey Cushing, Journal of the American Medical Association, 1909, vol. liii., p. 249; and the American Journal of Physiology, 1910, vol. xxvii., p. 60.

[11] See Mr. F. G. Parsons, Papers on Traction and Pressure Epiphyses in the Journal of Anatomy and Physiology, 1904, vol. xxxviii., p. 243, vol. xlii., p. 388.

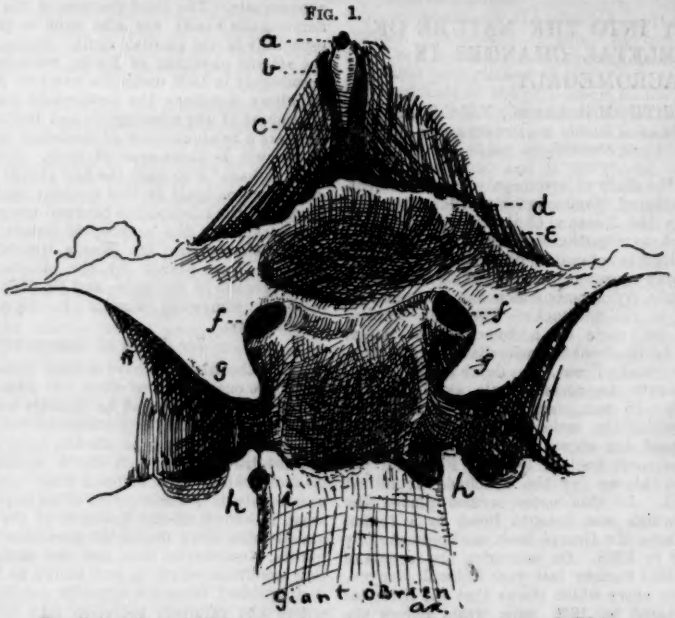
[12] Hunter, John, Collective Works (Palmer's Ed.), vol. iv., p. 316.

is functionally connected with coördination of the processes of deposition and absorption of bone during the growth of the skeleton; in acromegaly an imperfect process of growth is again awakened; the awakening is apparently due to a hypersecretion of the pituitary.

*Acromegaly Contrasted with Paget's Disease.*

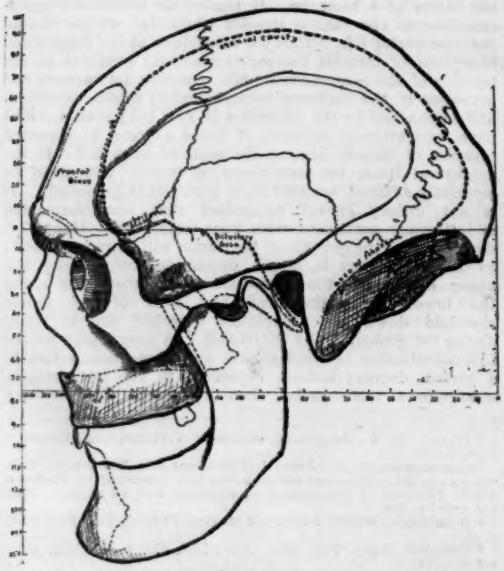
The new deposit of osseous matter does not depend apparently on the pituitary secretion. Osteoblasts may be stimulated to lay down new bone in many ways. In osteitis deformans (Paget's disease) the deposit of new bone is profuse and subperiosteal; it may be, as Arbuthnot Lane[13] suggested, that the absorption of the old bone is the circumstance which calls forth the profuse deposit of new bone. In osteitis deformans the processes of absorption and deposit are altogether different from that which takes place in acromegaly and normal growth; the new bone is laid down as a porous subperiosteal layer; the old bone everywhere undergoes absorption; there is no resemblance between this pathological process and the normal one of growth. In Paget's disease the osteoblasts have lost one of their most remarkable properties—that of being sensitive to the forces which act on the bones. This property or function of the osteoblasts must be one of their earliest specialisations. Mr. W. Woodland[14] has shown that the scleroblasts which form the spicules of sponges lay down the skeletal elements in conformity with the movements of the surrounding water. Whatever the nature of the cause of Paget's disease may be it is one which deprives the osteoblasts of what may be called their architectural function. In acromegaly the architectural function is not lost;

FIG. 1.



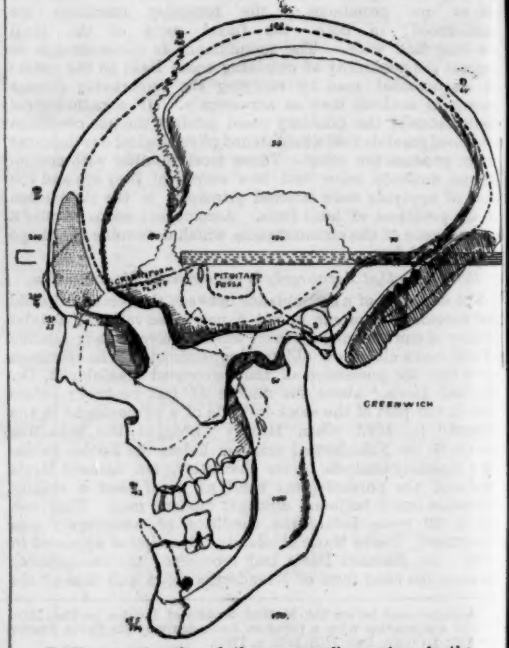

The pituitary fossa of O'Brien's skull (natural size). *a*, Foramen cæcum; *b*, Crista; *c*, Cribriform plates; *d*, *e*, Ridge and fossa caused by impression of pituitary tumour on presphenoid; *f*, Optic foramen; *g*, Anterior clinoid processes; *h*, Petrous bone; *i*, Dorsum sellæ.

FIG. 2.



A profile construction of O'Brien's skull showing the outline of the cranial cavity, frontal sinus, and palate (two-fifths natural size). The temporal lines extend anterior to the frontal poles of the brain.

FIG. 3.




Profile reconstruction of the acromegalic cranium in the Museum of the Seamen's (Dreadnought) Hospital, Greenwich (two-fifths natural size). The bar seen to perforate the skull marks the plane on which the cranium was orientated. The plane corresponds to the lower border of the cerebrum.

[13] Lane, W. Arbuthnot, THE LANCET, April 28th, 1888, p. 815.

[14] Woodland, W., Quarterly Journal of Microscopical Science, 1905, p. 251; 1906, p. 533.

bone is laid down so as to meet the pressures and tensions of the muscles and ligaments and of gravity. Indeed, they become increasingly sensitive to such stimuli. By the twenty-fifth year they have almost ceased to react in normal individuals except when the work of the muscles and strain of the ligaments are greatly exaggerated. In acromegaly they are rendered so sensitive that they react to stimuli which, in normal individuals, would be ineffective.

*Material Available for Study in London.*

Only those who have taken considerable trouble know how extensive the literature dealing with acromegaly has become. In 1898 Mr. Percy Furnivall[15] was able to collect post-mortem descriptions of 48 cases. Sternberg[16] states that he had collected records of 210 cases. At the present time it would be possible to collect a list of 400 recorded cases. In this great literature there is nowhere to be found an exact inquiry into the nature of the growth changes of the skeleton, particularly of the skull. My intention in writing now is to make good this blank. In the Museum of the College of Surgeons, England, there are the following specimens of acromegaly:—

1. The skull and skeleton of the giant O'Brien. Professor Cunningham was the first to recognise that Hunter's famous giant, obtained at great cost and trouble, was the subject of acromegaly. The condition of the pituitary fossa is shown in Fig. 1; it is greatly enlarged, measuring 21 mm. antero-posteriorly, 24 mm. from side to side, and 11 mm. in depth. There had been clearly a tumour of the pituitary, a process of which had grown upwards and forwards, causing a very distinct impression on the floor of the cranial cavity (Fig. 1) between the optic groove and cribriform plates. O'Brien is clearly an example of an acromegalic giant, and suffered from a tumour of the pituitary. He died in 1783 at the age of 22; the stature of his skeleton is 7 ft. 8¼ in. (2354 mm.).

2. The acromegalic skull already mentioned as belonging to the Barnard Davis series. This also I believe has been obtained from an acromegalic giant.

3. An acromegalic skull of a man which Mr. Shattock recognised in the collection of Italian crania acquired by the College from Professor Nicolucci in 1870. It is now shown in the pathological series. The pituitary fossa has been enlarged by a tumour; it measures 20 × 17 × 20 mm. deep.

4. A cranium presented to the College by Mr. Thomson Walker. It is a woman's skull and was acquired in Vienna. It shows an irregular or uncommon type of acromegaly, in some points resembling the cranial lesions seen in Paget's disease. The pituitary has been the seat of a tumour; the fossa measures 19 × 22 × 14 mm.

5. The calvarium of an insane acromegalic woman, aged 40 years, presented by Mr. Cecil Beadles[17] in 1907. In this case there was a tumour of the pituitary.

6. Pituitary tumour, *in situ*, of a case recorded by Mr. J. Breward Neal and Mr. S. G. Shattock.[18]

Besides the material in the College Museum I was fortunate in obtaining access to the following specimens.

1. A remarkable cranium of a man in the Museum of the Seamen's (Dreadnought) Hospital, Greenwich. The specimen is mentioned by Mr. Richard Partridge in his article on the Face in "Todd's Encyclopædia of Anatomy and Physiology," Vol. II., p. 219, 1839. The pituitary fossa is uniformly enlarged and measures 21 × 23 × 11 mm. The age of the man, a native of Shields, is unknown, but I estimate from the condition of the skull that he was between 50–60 years.

2. In the Museum of St. Bartholomew's Hospital there are specimens from three cases of acromegaly, including the case described by Mr. P. Furnivall in 1898. There is also there the skeleton of a negro who evidently was the subject of acromegaly or a nearly allied condition. The stature estimated from the skeleton is 1910 mm.; certain of the digits are hypertrophied; the bones of the skull are dense and thick; the bones show changes recalling the lesions seen in acromegaly. The number of the specimen is 298. His leg was amputated by Mr. Earle on account of a condition which was diagnosed as syphilis. The pituitary fossa is slightly enlarged, measuring 19 mm. back to front, 12 side to side, and 8 in depth.

3. In the London Hospital Museum there is a series of pituitary tumours, one of which was removed from a case of Dr. T. W. Chevalier in 1827. The description of this case,[19] that of a woman aged 39 years, leaves no doubt as to the nature of the disease. So far as I know Dr. Chevalier's is the first complete description of acromegaly in this country. There is also in the same museum the skeleton of the only non-acromegalic giant in London. The skeleton measures 2170 mm. (7 ft. 2 in.), and the pituitary fossa is only slightly enlarged, measuring 15 × 18 × 6 mm. Mr. T. Openshaw, who at great trouble prepared and articulated this very valuable specimen, informs me that the skeleton is that of a Chinaman who died in London in 1880 and was about 50 years of age. He died from broncho-pneumonia in the City of London Sick Asylum. There are also in the same museum the skeleton and casts of the "elephant" man described by Sir Frederick Treves.[20] The condition, although unilateral, is certainly one closely allied to acromegaly.

4. In the Museum attached to Charing Cross Hospital there are casts of the face and hands and representative parts of the case described by Dr. William Hunter.[21]

5. In the Museum of St. Mary's Hospital there are two specimens, not of acromegaly but of closely allied diseases. One is a case of leontiasis ossea; the other exemplifies a condition which is evidently a distinct morbid entity and deserves a fuller description than can be given here. The pituitary fossa is deformed and the condition of the skull shows characters which ally it to acromegaly on the one hand and oxycephaly on the other.

6. I had also the opportunity of examining, in the Museum of Edinburgh University, the skeleton of the case of acromegaly first described by Professor Cunningham in 1878, and 10 years later, in a more detailed manner, by Professor Alexis Thomson.

*Growth Changes in the Palate.*

In acromegaly there is no increase in the area of the palate. By the palatal area is meant the space bounded anteriorly and at the sides by the outer alveolar margin, and behind by a base line drawn from one side of the palate to the other behind the last molar tooth. (Fig. 4.) The area has a physiological significance; its extent depends on the roughness and quantity of the food. Fig. 4 shows the manner in which the size of the palate is estimated; the outline is traced on millimetre paper and the enclosed area estimated. In Fig. 4 A are shown the areas enclosed by the upper and lower alveolar arcades of the acromegalic. The figures are founded on measurements made on six cases of acromegaly. In Fig. 4 B the corresponding areas in normal individuals are shown. They are founded on measurements made on 21 students at the London Hospital. The mean area of the upper alveolar arcade in the acromegalic is 2720 mm². ; in the English students the mean area is greater—viz., 2800 mm². ; the area of the lower arcade in the acromegalic is 2370 mm². ; in English students 2620 mm². In giant O'Brien the upper arcade measured 2800 mm². ; in a gentleman who has suffered from acromegaly for over 20 years it amounts to 2170 mm². There is thus a difference of 630 mm². between the largest and the smallest palate in the six cases. The area of the palate is actually diminished in the acromegalic, especially that of the lower dental arcade. Fig. 4 also gives the mean lengths and breadths of the palate. Besides a reduction in the size of the lower alveolar area there are also certain constant and well-marked growth changes in the alveolar part of the lower jaw of the acromegalic: (1) The width between the last lower molars is increased in the mean by nearly 10 mm., so that the right and left lower molars in place of being nearer together than the upper are wider apart and project beyond the upper dental arcade (Fig. 4); (2) the canines are advanced so as to come more nearly into a transverse line with the incisors (Fig. 4); (3) porous vascular bone is heaped up on the alveolar margin, elevating the dental sockets. The vault of the hard palate is thus increased; the mean height of the alveolar margin measured from the hard palate opposite the second molar tooth is 17·5 mm. in the

[15] Furnivall, P.: Transactions of the Pathological Society of London, 1898, vol. xliv., p. 204.

[16] Sternberg, M.: loc. cit.

[17] See Edinburgh Medical Journal, 1898, p. 501.

[18] Transactions of the Pathological Society of London, vol. xlix., p. 224.

[19] Chevalier, T. W.: London Medical and Physical Journal, 1827, vol. lviii., p. 498.

[20] Treves, Sir Frederick: THE LANCET, March 21st, 1885, p. 519.

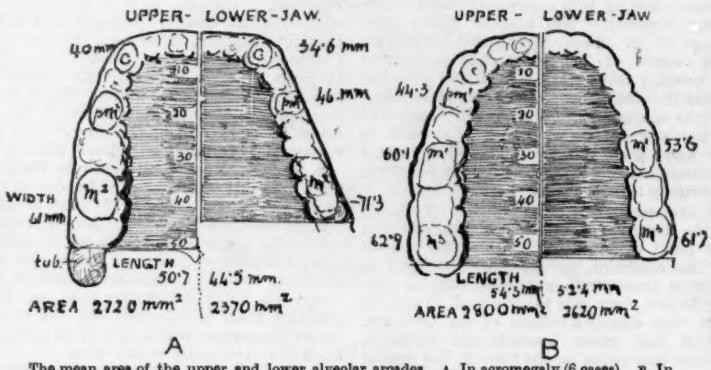
[21] Hunter, W.: Transactions of the Pathological Society of London, 1898, vol. xlix., p. 246.

acromegalic and 12·5 in English students. Similarly the lower alveolar margin of the mandible is raised, the tooth sockets being elevated at the same time. The separation of the teeth which occurs in acromegaly, is due to the alveolar or socket elevation, not to a linear increase of the alveolar margin. The growth at the alveolar margins and the elevation of the dental sockets I suppose to be stimulated by the pressure brought to bear on those parts during mastication. Pressure cannot influence the linear dimensions of the alveolar arch; that depends on the number and size of the teeth.

*Growth Changes in the Mandible.*

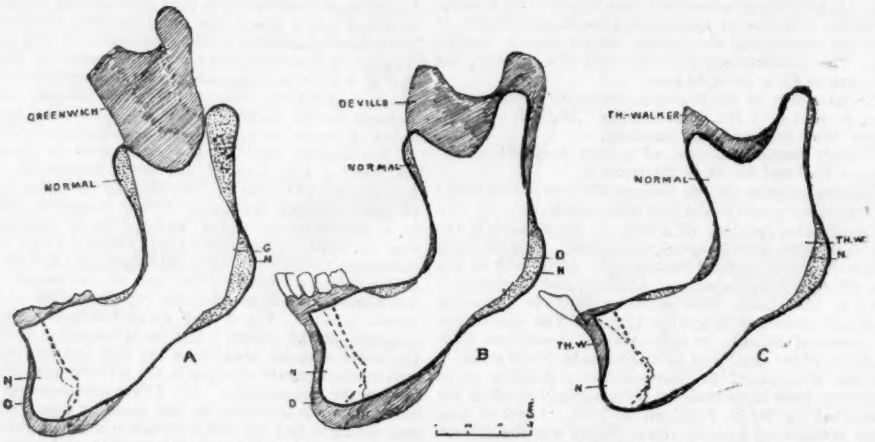
The results given regarding the palate will surprise those who have noted the great face changes in the acromegalic, especially the underhung protuberant mandible and chin. The cause of the mandibular projection becomes very clear when the growth changes are analysed. The changes are shown in Fig. 5. In Fig. 5 A the mandible of the Greenwich skull is compared with a mandible which may be regarded as normal. As regards the body of the jaw, growth is seen to have taken place (1) in the alveolar margin, (2) on the mental eminence, (3) on the lower margin anterior to the groove for the facial artery. The most remarkable changes are seen in the ramus; the double process of deposition and absorption has completely altered the character of the ramus. It has become markedly narrower; the region of the angle has been absorbed and hence the appearance of an opening out of the angle between the ramus and body of the jaw in the acromegalic. The ascending ramus has increased in height; in place of its height as measured from the lowest insertion of the masseter to the upper surface of the condyle being 65 mm. as in average men, it measures 92 mm.; in the Nicolucci mandible 95; in the gentleman already mentioned 90. The ramus has grown in each of these three cases over an inch in height, and at the same time absorption has been proceeding in the region of the angle. The changes represent exaggerations of the normal process of growth. The condyle, the coronoid process, and the sigmoid notch form the growing edge; growth is taking place at the points of pressure (temporo-maxillary joint) and traction (coronoid process). The whole mandible is being pushed downwards and forwards by the growth at the temporo-maxillary joint, hence the misfit between the lower and the upper teeth. One must remember what such a growth entails: the temporo-maxillary ligaments have to be constantly readjusted in their attachments; the masseter and internal pterygoid muscles must also lengthen and alter their insertion. As is well known, the movements at the temporo-maxillary joint become limited. The more the mandible is elongated and depressed the more the temporal muscle acts in the line of the ascending ramus; hence the narrowing of the ramus. Another growth change is not shown in a profile drawing, but is shown when the jaw is examined in a full face drawing (see Fig. 11). Bone is being absorbed from the inner side of the ramus, and being deposited in the outer side at the same time so that the rami appear to move apart, increasing the width of the mouth and pharynx. In normal English jaws the distance from one angle of the mandible to the other varies from 90–98 mm.; in cases of acromegaly the distance is increased, varying from 112–118 mm. The increase is about 14–18 mm. In Fig. 5 B the mandible of the Deville cranium—named after the phrenologist who at one time owned the skull prior to Dr. Barnard Davis—is compared with a normal mandible. The change is not so great as in the three cases just cited, but comparable in amount to the growth change seen in O'Brien's mandible. The Deville cranium is probably also from a giant. In the cranium

FIG. 4.




The mean area of the upper and lower alveolar arcades. A, In acromegaly (6 cases). B, In English medical students (21 individuals). The mean measurements for length and breadth are given on the figures.

FIG. 5.



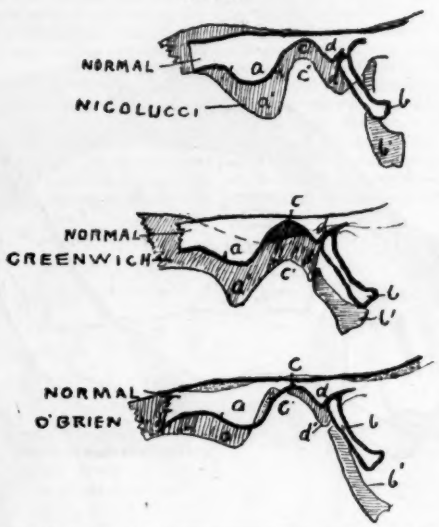

Projection profile drawings of the lower jaw from cases of acromegaly contrasted with similar drawings from a representative normal English skull (indicated by a heavy outline). The stippled areas are those which are absorbed, the shaded those which are deposited. (Half natural size.)

presented by Mr. Thompson-Walker the changes are slighter; it must be remembered that this specimen is from a Viennese woman and is compared with the mandible of a normal English male. Yet even in this case, one in which a superficial observer would probably say there were no signs of acromegaly, the mandible shows changes of the same nature as in more marked cases.

*Changes in the Temporo-maxillary Joint.*

As can be readily understood, the growth changes in the condyle of the jaw must affect the temporo-maxillary joint. In all the cases I have had an opportunity of examining such changes are present. The articular eminence is apparently worn away until its anterior part forms merely a margin to the glenoid fossa. (Fig. 6.) When, however, the root of the zygoma is examined it is seen that growth has been in progress on the cranial as well as on the mandibular side of the joint. (Fig. 6.) The floor of the glenoid cavity, in place of being 2 or 3 mm. thick, has become from 5 to 8 mm.; the depth of the zygomatic arch as measured from its upper to its lower border at the articular eminence has increased. (Fig. 6.) The limitations in the movements of the mandible are correlated with the changes at the joint.

FIG. 6.

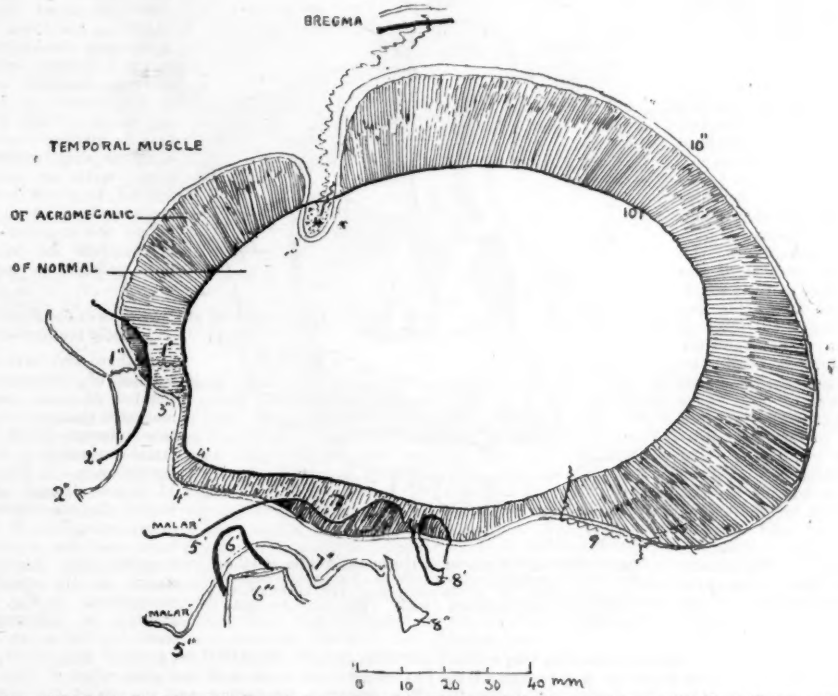



Reconstructions of the temporo-maxillary changes in the acromegalic contrasted with the corresponding parts of a normal skull, three-fourths natural size. *a*, Articular eminence; *b*, Tympanic plate; *c*, Glenoid fossa; *d*, Post-glenoid spine.

*Changes in the Temporal Fossa and Muscle.*

Most remarkable growth changes alter the boundaries of the temporal fossa. (Fig. 7.) At birth the origin of the temporal muscle extends only a little way above the lower margin of the parietal bone. As the jaws grow and the teeth appear its origin extends upwards on the side of the skull towards the sagittal suture, preceded by a growing wave of bone—the temporal ridge. At the same time its origin is pushed back towards the lambdoid suture and forwards on the sides of the frontal bone. When acromegaly sets in this process of growth is continued. In Fig. 7 the normal origin of the temporal muscle (unshaded) is contrasted with its origin in a typical acromegalic skull (the Greenwich specimen). *Certain points within the skull were taken as base lines for the purpose of comparison.* The origin of the temporal muscle has extended upwards and backwards on the parietal from 10–25 mm.; the ascent is always arrested at the coronal suture. (Fig. 7*.) The forward growth on the frontal bone leads to most remarkable transformation of

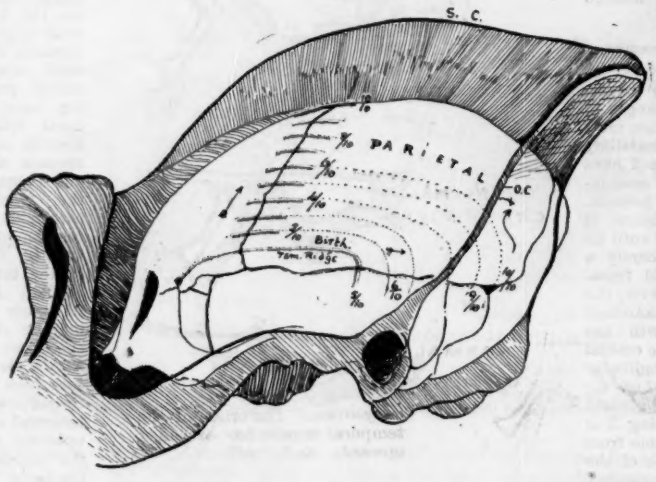
FIG. 7.




Comparison of the normal origin of the temporal muscle and boundaries of the temporal fossa with those of the acromegalic. 1', External angular process of the normal skull; 1", of the acromegalic; 2' 2", Lower margin of the orbit; 3' 3", Ascending process of the malar; 4' 4", Upper margin of the zygoma; 5' 5", Origin of the masseter (lower margin of malar); 6' 6", Coronoid process; 7' 7", Articular eminence; 8' 8", Tympanic plate; 9, Parieto-mastoid suture; 10' 10", Temporal ridge (muscular); * Stephanion.

the region of the forehead. When viewed in absolute profile the anterior part of the temporal ridge falls 15–20 mm. behind the line of the frontal pole of the brain in normal crania (see Fig. 9), but in acromegaly this ridge may pass forwards until it is in a line with the frontal pole, or may even pass in front of it. (Figs. 2, 3, 7, and 9.) We have here a key to the great growth of the supra-orbital ridges and expansion of the frontal sinuses in the acromegalic. The external angular process of the frontal bone and ascending process of the malar—the whole outer wall of the orbit—is actually prolonged or moved forward. (See Fig. 7.) Not only so, but the zygoma in relation to the cranial cavity is lowered, thus increasing the height of the temporal fossa by depressing its floor. (See Fig. 7.) The external auditory meatus in some cases is depressed 10 mm. or more.

FIG. 8.




The growth of muscular ridges and processes in the skull of the gorilla. The skull (unshaded) of a gorilla in which the milk dentition is beginning to appear is placed upon a profile drawing of the skull of an adult male gorilla. Both are drawn to the same scale and are superimposed at corresponding points. The arrows show the direction in which the temporal ridges grow. S.C., Sagittal crest. O.C., Occipital crest.

*Growth Changes in Anthropoids Compared with those seen in Acromegaly.*

The key to the growth changes in acromegaly is to be found by studying the corresponding alterations in the crania of growing anthropoids. These changes can be best realised in gorillas. (See Fig. 8.) In anthropoids the cranial cavity has reached almost its full size by the time the animal is four months old. The cranial growth after that period concerns the development of muscular ridges and processes. The temporal muscles spread upwards on the side of the skull until the ridges or waves of bone which precede them fuse along the sagittal suture to form a median crest. (Fig. 8.) They spread backwards until the temporal ridges meet and fuse with the wave of bone which precedes the expanding muscles of the neck to form the occipital crests. (Fig. 8.) The manner in which the temporal fossæ are enlarged by the forward growth of the supra-orbital ridges and of the angular and malar processes is shown in Fig. 8. The growth changes in the acromegalic skull are very clearly of the same nature as those which occur in the growing anthropoid.

FIG. 9.

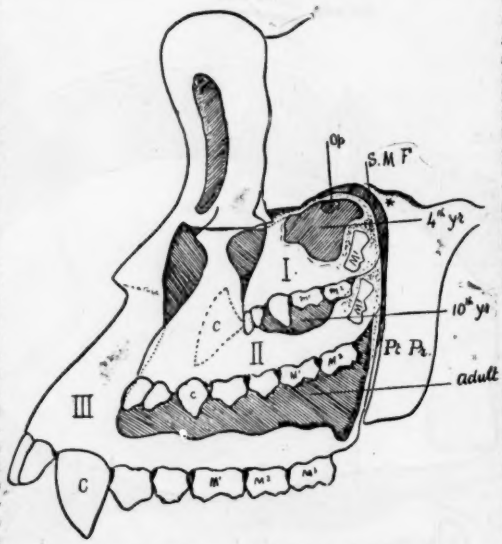



Diagram showing the growth of the upper maxilla and the eruption of the teeth in the gorilla. I., Superior maxilla at the fourth year; II., at the tenth year; III., in the adult. S.M.F., Spheno-maxillary fossa. Pt. Pr., Pterygoid process.

The growth changes in the upper jaw are also very evident in the gorilla. In Fig. 9 three stages in the growth of the maxillary bone are shown (1) at the fourth year before the first molar tooth has erupted; (2) at the tenth year before the third molar is erupted; (3) when the permanent dentition is complete. The most active centre of growth, as may be seen from Fig. 9, is the posterior part of the maxilla in which the permanent molar teeth are developed. The area of the palate is greatly increased during the eruption of the permanent teeth in the gorilla. In acromegaly the case is the opposite: the size of the palate is rather reduced than increased in area. In some manner the developing teeth supply the stimulus that leads to the development of the palate; in acromegaly this stimulus is absent. During eruption of the teeth the growth of the upper and lower maxillæ is so coördinated that the upper and lower teeth fall into correct apposition. There are at least two factors concerned in this coördination: (1) A substance, evidently derived from the pituitary body which acts on the osteoblasts so that they respond readily to certain stimuli; (2) certain forces or stimuli which act directly on the jaws. These stimuli arise from: (*a*) the developing teeth; (*b*) from pressure applied to the alveoli during mastication; (*c*) from the direct traction of the muscles of mastication. The last-named force acts chiefly on the lower jaw. In acromegaly the sensitising substance is present, and so is the muscular traction, and hence in that disease it is the ascending ramus of the lower jaw that is affected leading to a complete displacement of the lower teeth as regards the upper. In giants in whom the acromegalic condition appears before the eruption of teeth is complete the palatal area does undergo an increase of growth.

*Changes in the Forehead and Face of the Acromegalic.*

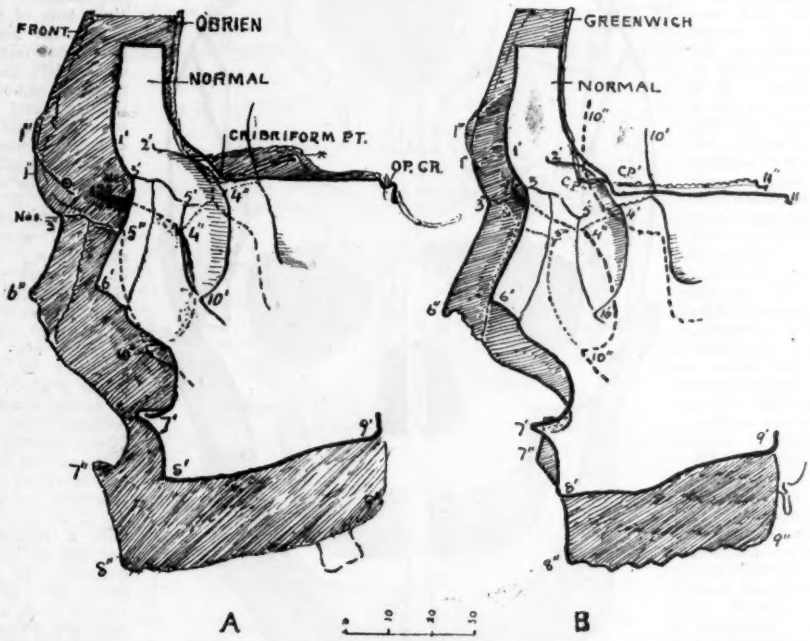
In those who have been the subject of acromegaly for a number of years certain remarkable changes occur in the face—changes which recall the facial characters of the Neanderthal race. In Figs. 10 and 11 these changes are represented diagrammatically—but drawn accurately to scale. I have used the representative English skull already mentioned as the standard for comparison. In Fig. 10 A this cranium is superimposed on that of O'Brien, so that the anterior ends of the cribriform plate of each correspond and so do the upper surfaces of the lesser wings of the sphenoid. The immense thickening and growth of the supraorbital region of the forehead is at once apparent; from the cribriform plate to the glabella of the normal skull the distance measures 14 mm.; in the giant, 34 mm.; in the Greenwich

specimen (Fig. 10, B), 25 mm.; in the Nicolucci and Deville specimens, 24 mm.; in the Thompson-Walker specimen (a female), 15 mm. In the giant and Greenwich specimens the frontal sinuses are enormously expanded; in the Thompson-Walker specimen the sinus is very small. The functional meaning of the great growth of the eyebrow region has been already alluded to. The temporal development has caused a forward growth of the orbital region, the external angular process of the frontal and ascending process of the malar coming to occupy a position from 10 to 15 mm. further forwards and downwards than in the normal skull (see Fig. 10, A B).

In acromegaly the nose becomes long and remarkably prominent. It will be observed from Fig. 10 that the nasal bones are very little enlarged, nor is the bridge of the nose more prominent when measured from the lower margin of the orbit. The great development of the supraorbital region of the forehead has forced the root of the nose downwards and forwards. But the nasal prominence is chiefly due to the fact that while the supraorbital region has undergone a remarkable increase in size the palate and maxillary part of the face remain unchanged—at least, as regards its degree of projection or prognathism (see Fig. 10 B). The margin of the pyriform aperture becomes more oblique in position, and this leads to an apparently great increase in its size, whereas in its real height it is little altered. The increase in the length of the upper face is chiefly due to an increase in the depth of the alveolar margin of the maxilla, but, as will be seen presently, the length (or depth) of the malar and upper maxilla is also increased, but to a lesser degree. The length of the upper face as measured from the nasion to the alveolar margin in the English skull, used here as a type, is 73 mm.—3 mm. more than what may be regarded as an average. In the Nicolucci specimen it is 90 mm., in the Greenwich 82, in the Deville 83, in O'Brien 83, in the Thompson-Walker 71. In the Neanderthal race, so far as we yet know it, the length of the upper face varies from 80 to 90 mm.—the same as in the acromegalic. As already said, the chief increase affects the depth of the alveolar margin. This increase I regard as being due to the intermittent pressure of mastication, pressure acting as a stimulus to the alveolar margin of the maxilla.

The facial changes in acromegaly are further seen when the face is studied from the front. In Fig. 11 these changes are represented. On the left hand of that figure I have superimposed the normal skull on the Greenwich specimen; on the right hand side on O'Brien's skull. One sees at once there is slight increase in the inter-orbital diameter; it amounts to from 3 to 5 mm. The chief change in the orbit concerns its outer wall. The external angular process of the frontal and the ascending process of the malar move not only forwards, as we have already seen, but also outwards from 8 to 10 mm., thus enlarging the orbits in an outward and downward manner. (Fig. 11.) The increase is connected with the temporal changes already described. The growth of the malar and zygoma is remarkable; they are apparently stimulated by the traction of the masseter, the depth of the body of the malar being increased from 8 to 15 mm. (Figs. 10, 11.) The interzygomatic diameter in the type skull is 129 mm. (130 is the mean measurement); in O'Brien it is 153, in the Deville specimen 150, in the Greenwich 150, in the Nicolucci 154, and in the Thompson-Walker specimen 124. As already said, the last specimen shows many aberrant features. The increase in the depth of the alveolar margin is shown, so are the remarkable changes in the mandible. The depth of the symphysis has increased; the condyles and ascending rami have moved apart. The extent of these changes may be estimated from Fig. 11, which is reproduced one-half natural size. The total increase in face length in well-marked cases of acromegaly is about 20 mm; the increase from one angle of the jaw to the other rather less.

FIG. 10.




Profile drawing of a representative English skull placed on a corresponding tracing of O'Brien's cranium (A) and on the Greenwich specimen (B) (Two-thirds natural size.) 1′ 1″, Glabella of normal skull and of acromegalic skull; 1′ 1″ 1‴, Supraciliary process; 2′ 2″, Supraorbital margin of the normal and acromegalic crania; 3′ 3″, Nasion; 4′ 4″, Fronto-malar junction; 5′ 5″, Internal angular process; 6′ 6″, Tip of nose; 7′ 7″, Nasal spine; 8′ 8″, Incisor point of alveolar margin; 9′ 9″, Posterior alveolar tuberosity; 10′ 10″, Anterior part of temporal ridge; 11′ 11″, Optic groove (also OP. GR.); cribriform point is the anterior end of cribriform plate.

*Changes in the Vault and Capacity of the Skull.*

Mr. Cecil Beadles [22] noted a fact in connexion with

[22] Beadles, Cecil: loc. cit.

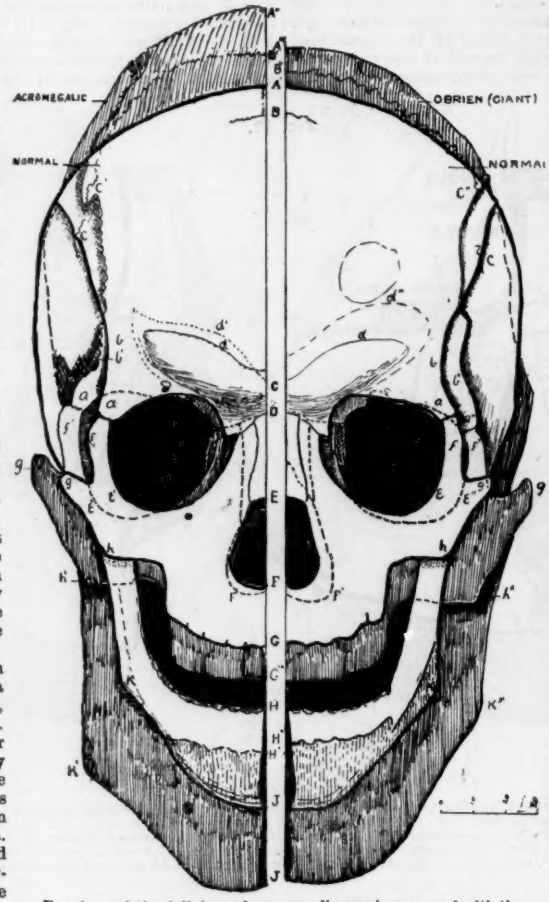
pathological thickening of the vault of the skull which I have verified—viz., that this thickening affects the frontal section of the vault first and most. The process commences in the forehead and spreads backwards. It will be noted further that the thickening along the vault is bounded on each side by the temporal lines. Thus between the origins of the temporal muscles there is built up a strong sagittal arch of bone, the anterior part of the arch resting on the supra-orbital bar, the posterior on the external occipital protuberance. The arch provides a strong fulcrum for the origin of the temporal muscles. The arch in the gorilla is similarly strengthened by the high sagittal crest. The thickening of the calvarial sagittal arch I regard as similar in nature to the other changes already mentioned—its formation is correlated with the masticatory changes. In three of the crania the fronto-parietal and fronto-sphenoid sutures were raised up or elevated above the plane of bones as if growth had also occurred in the sutural lines, thus increasing the antero-posterior length of the cranial vault. It is possible there may be a slight increase in the size of the cranial cavity, but the evidence on this point is inconclusive. The mean cranial capacity of the skull of the English male may be taken at 1540 c.c.; in the Deville cranium (a giant's) the capacity is 1650 c.c.; in O'Brien, 1550; in the Greenwich specimen, 1500; in the Nicolucci specimen, 1500; in the Thompson-Walker specimen, 1200 c.c. It is becoming apparent that the capacity of the Neanderthal crania has been under-estimated; they apparently approach the figure given for the Deville cranium.

It is well known that in Paget's disease the calvaria become greatly thickened, measuring from 12–20 mm. The dense outer and inner tables are replaced by porous bone. Along the roof of the skull the bones vary in thickness from 5–7 mm. in normal crania. Mr. Cecil Beadles[23] regarded calvaria in which the average thickness was above 12 mm. as having been subjected to pathological changes. In Neanderthal crania the thickness varies from 8–10 mm. In the six acromegalic calvaria which I examined minutely, the thickness of the frontal and of the parietal bones was the following: Mr. Beadles's specimen, 6 mm., 6 mm.; Greenwich specimen, 6, 8; Nicolucci, 15, 15; the Deville, 10, 10·5; O'Brien, 11, 10; the Thompson-Walker specimen, 12, 13. Thus in two of them the bones were markedly thickened and porous, recalling the condition in osteitis deformans; in two (O'Brien and Deville) the bones were thickened, but, as in Neanderthal calvaria, the outer and inner tables were retained; in two the bones were dense and of normal thickness. The frontal bone suffers the greatest degree of change, and is the first to undergo alteration. In all of these specimens the inner table of the frontal bone, especially above the orbital plates, shows a tendency to the formation of small dense osteomata. A similar formation occurs within the frontal sinuses.

*Changes in the Occipital Region of the Skull.*

I now turn to the occipital region of the skull which undergoes remarkable and instructive changes in acromegaly—changes which have not been hitherto described nor analysed. It will be remembered that in young anthropoids, as the neck grows in thickness and strength a wave of bone, represented by the upper curved lines on the human skull, expands in front of the growing muscles and forms a wide occipital crest. (Fig. 8.) In acromegaly a similar change occurs. In Fig. 12 is shown the area of a normal English skull to which the neck muscles are attached. On to the right side of the area is placed the corresponding part of the Greenwich skull; on the left half is superimposed the nuchal area of O'Brien's skull. The extent to which these two crania exceed the normal as regards the nuchal area is shown by the shaded marginal area. In acromegaly the muscles of the neck obtain a wider area of attachment. The extent of this area in the type skull is 8120 mm$^2$., in the Greenwich skull 10,320 mm$^2$. (an increase of 2200 mm$^2$.), and in O'Brien's 10,720 (an increase of 2510). The inion is moved upwards on the occipital bone from 8 to 10 mm. (exactly as we know is the case in the Neanderthal race) and the mastoid processes are wider apart by 10–25 mm. There is also a change in the position of the foramen magnum. In the giant's skull, and also in the Deville skull, which I believe also to be that of a giant, the foramen is moved backwards by a growth of the basilar process, as in the Neanderthal man; in the acromegalic crania of adults the foramen magnum is moved forwards owing to a remarkable atrophy of the basilar process of the occipital. These changes in the occipital region are illustrated also in Fig. 13. The posterior part of the base of the skull, including the pituitary fossa, is drawn to scale. The thickened outline represents the type skull, the thin shaded outlines the acromegalic. The atrophy of the basilar process in the Nicolucci and Greenwich specimens is apparent; in the giants' skulls the process is increased in length. The growth changes have altered the position of the auditory meatus. Bone has been added to the orifice so that the meatus is deeper and enlarged, but its position is also shifted; it has moved downwards and backwards as regards the basal part of the skull. The occipital condyles have also changed—a change which is more marked in the Greenwich specimens than in the others. The condyles

FIG. 11.




Drawings of the full face of acromegalic crania compared with the normal. The type skull is shown in outline; the acromegalic are shaded. On the left half of the figure the type skull is superimposed on the Greenwich specimen, on the right half on O'Brien's skull (⅓ natural size). A, Highest point of vault above the plane of orientation (subcerebral plane, see Fig. 3); B, bregma; C, glabella; D, nasion; E, tip of nose; F, nasal spine; G, alveolar point; H, alveolar point of lower jaw; J, mental eminence.

[23] Loc. cit.

are reduced in size; their axis is altered so that the head is carried in a more extended position; they are also pressed upwards into the base of the skull, as if the base had become softened and yielded somewhat. These changes are constant in the later and atrophic phases of acromegaly.

Other changes in the occipital region of the skull are shown in Fig. 14. Profile drawings of three acromegalic skulls are superimposed on corresponding outlines of a normal skull. The upper drawing shows the Nicolucci skull, and the changes in the Greenwich specimen are identical to those shown in this specimen. The root of the zygoma has been shifted, as regards the interior of the skull, downwards and backwards quite half an inch (12 mm.). These changes are correlated with the enlargement of the temporal fossa already described. The mastoid process is elongated, the area for the attachment of the neck muscles has been extended backwards by a deposit of bone in the region of the occipital protuberance; the line of attachment represented by the superior curved line assumes a more oblique position as regards the horizontal plane of the skull. The changes in the O'Brien and Deville crania are similar in character but less in extent. This is also true of the Thompson-Walker specimen. These alterations in the occipital region of the skull are similar in nature to those which I have described in the crania of growing anthropoids.[24]

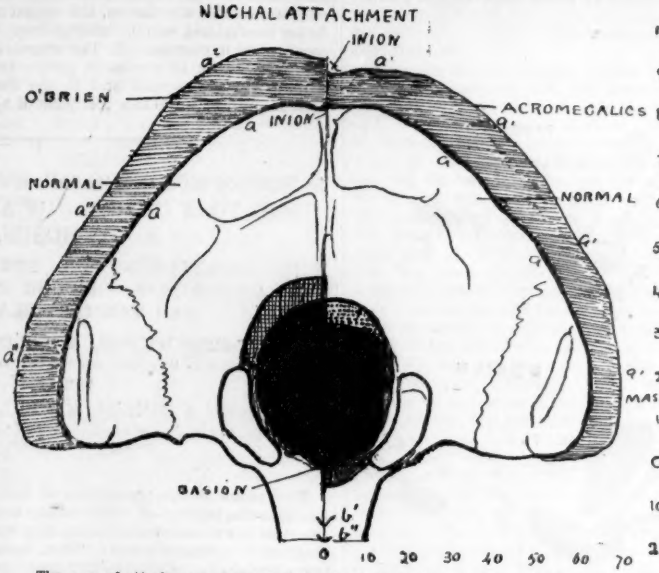
*Growth Changes in other Parts and Systems of the Body.*

The space at my disposal precludes a detailed description of the changes in the rest of the skeleton. They are of the same nature as in the skull—wherever there is traction applied by ligaments, or by muscles, or pressure applied, as in standing or walking, growth takes place in the part of the skeleton on which the various forms of force act. Atrophy is also at work—especially in the cancellous tissue, for it seems that growth and absorption are necessarily correlated. The atrophy especially affects the tarsus and bodies of the vertebræ. There are kyphosis and flat-foot in all cases of acromegaly of long standing.

All the systems of the body are affected, and this is especially true of the vascular system. John Hunter realised the close relationship between vascular formation and bone deposit. The growth of bone, such as we have seen occurs in acromegaly, implies an active formation of vessels. The osseous vascular system in acromegaly becomes markedly altered; the capillaries, and especially the venous sinuses, increase in number and in size. The surfaces of the bones become pitted and marked by vascular foramina and impressions. All the veins in and below the base of the skull dilate, especially the emissary veins. The small venous foramina open out, and one of them, the craniopharyngeal canal, the closed track of the developing pituitary body, may open up. It often does; in most anthropoids it remains open. It is open in O'Brien as in giants generally and in many cases of acromegaly, but in my interpretation it is not a congenital persistence betokening an inherent defect in the pituitary, but a dilatation of a minute vascular channel which is to be seen in the normal skull. All such venous vascular channels are dilated.

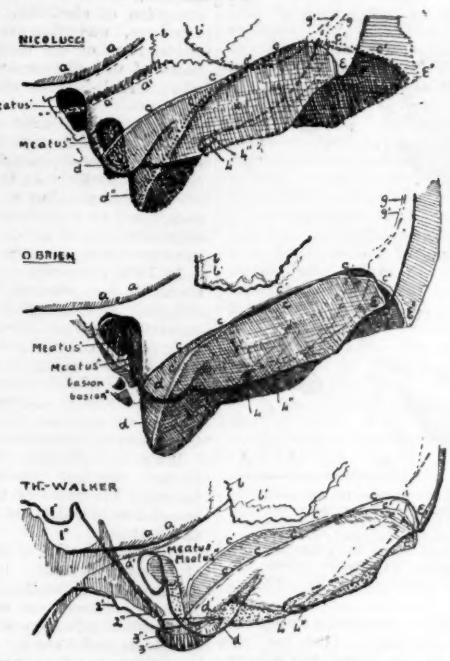
The connective tissue of the body increases, especially round the sheaths of nerves. This was markedly the condition in Dr. G. A. Gibson's case, the post-mortem examination of which has been so well described by Professor A. Campbell Geddes.[25] The skin hypertrophies. A formation

FIG. 12.




The area of attachment of the neck in the type skull (unshaded); the increase in the acromegalic skull is shown by the shaded area (two-thirds natural size).

FIG. 14.



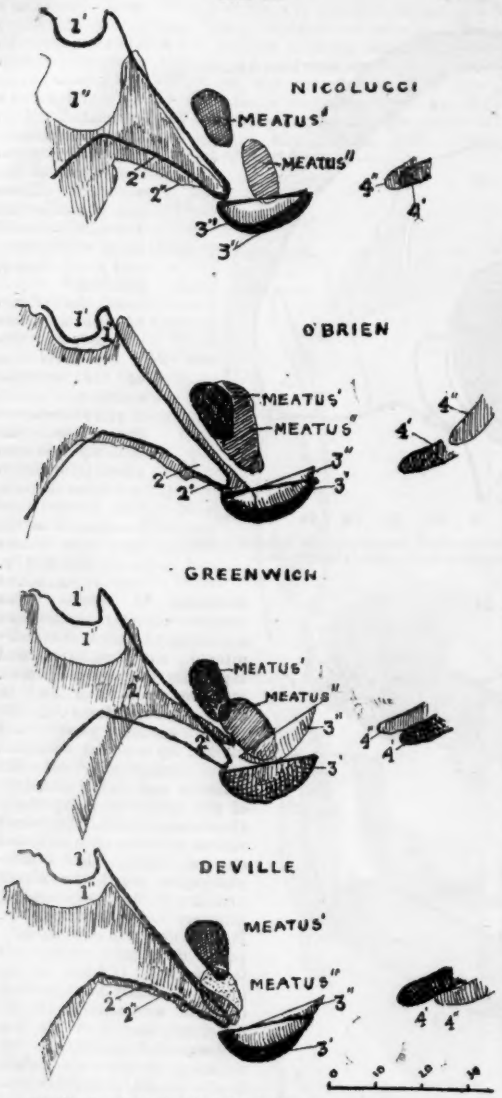

The growth changes in the occipital region of the skull in acromegaly. The upper drawing represents the changes in the Nicolucci specimen; the middle that in O'Brien (giant), and the lower in Mr. Thompson-Walker's specimen (half natural size). $a'$ $a'$, $a''$ $a''$, The suprameatal ridge in the normal and in the acromegalic skulls; $b'$ $b'$, $b''$ $b''$, The parietomastoid suture in the contrasted crania; $c'$ $c'$, $c''$ $c''$, Superior curved line of the occipital of the two crania; $d'$ $d''$, Mastoid process; $e'$, $e''$, External occipital process; $g'$, $g''$, Inner aspect of occipital bone; 1', 1'', Pituitary fossa; 2', 2'', Basilar process; 3', 3'', Occipital condyle; 4', 4'', Occipital behind foramen magnum (opisthion).

[24] Keith, A.: Journal of Anatomy and Physiology, 1910, vol. xliv., p. 251.

[25] Geddes, A. C.: Edinburgh Medical Journal, 1909, N. S., vol. ii., p. 218.

of small fibrous pendulous molluscous tumours on the side of the neck is very common. In many cases there is a hypertrophy of viscera.

FIG. 13.




Profile drawings showing the basilar process of the skull, pituitary fossa, external auditory meatus, occipital condyles, and foramen magnum of four cases of acromegaly. In each case a drawing of the corresponding parts in a type skull are shown (two-thirds natural size). 1' 1'', Pituitary fossa of type skull and of acromegalic; 2' 2'', Basilar process; 3' 3'', Occipital condyles; 4' 4'', Occipital bone behind foramen magnum.

It would take one too far afield to summarise the present position of our knowledge of acromegaly. That has been excellently done by Sir David Ferrier, Kohn, and Münzer. From the surgical point of view recent articles by Dr. Harvey Cushing[26] and Professor Eiselsberg[27] should be consulted.

The two points which I wished to bring forward evidence to prove in this paper were the following:—1. That the changes in acromegaly are of the nature of true growth, and are apparently due to the circulation through the body of a substance formed in the pituitary. This substance seems only to sensitise the tissues, the actual cause of their growth being mechanical stimuli arising from muscular action and mechanical movement. 2. The growth changes seen in the acromegalic are of the same nature as those which occur normally in anthropoids and in the Neanderthal race, and both are probably due to a condition of hyperpituitarism.

[26] Cushing, H.: Journal of the American Medical Association, 1909, vol. liii., p. 249.

[27] Eiselsberg, F. von: Annals of Surgery, 1910, vol. lii., p. 1.

# A HOUSE EPIDEMIC OF ENTERIC FEVER DUE TO A CARRIER OF AN ATYPICAL B. TYPHOSUS,

## WITH OBSERVATIONS ON THE TRANSMISSION OF AGGLUTININS THROUGH THE PLACENTA AND MAMMARY GLAND.

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THE cause of the prevalence of typhoid fever in Belfast has been the subject of much study and investigation. At one time it was believed by many that water was the infective medium in epidemic years. When, however, the matter was investigated at a public health inquiry instituted by the Local Government Board in 1907, the case for the water-borne theory was not sustained; and Dr. L. W. Darra Mair (1), one of the members of the Commission, as a result of his investigations, came to the conclusion that probably the consumption of shell-fish, collected from a sewage-polluted foreshore, was the main cause of the endemicity and epidemicity of the disease. The fact that the number of cases of this disease has markedly declined since the sale of such shell-fish has been prohibited strongly supports this view.

The house epidemic of which we give an account may have originated through the eating of cockles, but the majority of the cases were probably due to the fact that the first case became a carrier. At the time of the inquiry the importance of the human being as an infective agent was not so well recognised as at present. In recent years, however, a considerable number of cases of typhoid fever in Belfast have been attributed to carriers.

In 1906 there was a milk epidemic in which there were about 30 cases, several of which were fatal. The source of infection in this outbreak was probably a dairymaid, who had suffered several weeks previously from a disease regarded as influenza complicated with jaundice. The blood of this woman gave a well-marked Widal reaction (1 in 50 dilution), and on her isolation the epidemic terminated. In a paper (2) published shortly afterwards one of us was able to instance this as an example of the value of the agglutination test in the sphere of preventive medicine.

Irwin and Houston (3) gave an account of a domestic servant who had typhoid bacilli in her urine, and who was probably the cause of three outbreaks of enteric fever in households in which she was employed at Liscard, Liverpool, and Belfast.

The investigation of the present cases revealed some facts of scientific interest. In the house epidemic in question the mother of the family, aged 41 years (referred to later as Mrs. Z), suffered from an illness which was not recognised as a typhoid infection at the time. Jaundice was one of the symptoms, and from her subsequent account of her condition it would appear that she had had an attack of typhoid fever. It is of interest to note that a fortnight before her illness she had eaten some cockles. The mother's illness began in the middle of May, 1910, and after her recovery she attended to her household duties, including the preparation of the food of the family. Towards the end of June two of the children sickened and, being diagnosed as suffering from typhoid fever, were sent to the city fever hospital. In Table I., which was very kindly prepared for us by Dr. John M. McCloy, resident medical officer of the Belfast fever hospital,

Purdysburn, the chief facts regarding the history of the cases are given.

TABLE I.

| Patient. | Age. | Date of admission. | Days ill on admission. | Number of days since onset on Nov. 7th, 1910. | Date of discharge. | Remarks. |
|---|---|---|---|---|---|---|
| Mrs. Z. | 41 | Oct. 17th, 1910. | 150 | 171 | Nov. 28th, 1910. | Shell-fish history. |
| Son. | 6 | June 29th, ,, | 18 | 72 | Aug. 22nd, ,, | ,, |
| ,, | 12 | July 1st, ,, | 2 | 87 | Sept. 26th, ,, | ,, |
| ,, | 17 | Sept. 7th, ,, | 15 | 76 | Nov. 14th, ,, | No shell-fish history. |
| ,, | 16 | ,, 11th, ,, | 7 | 64 | ,, 14th, ,, | ,, |
| ,, | 19 | Oct. 1st, ,, | 21 | 59 | Dec. 19th, ,, | ,, |
| ,, | 14 | ,, 1st, ,, | 21 | 59 | Nov. 21st, ,, | ,, |
| Baby. | — | ,, 21st, ,, | — | — | — | — |

It will be observed that altogether seven members of this family have suffered from typhoid fever during the summer and autumn of 1910. We may add that the husband and two children have not as yet been attacked. When it was proved that the mother was a typhoid carrier she was sent to hospital. On admission she had no fever but presented the worn appearance of a person convalescent from a severe attack of enteric fever. Her spleen was hard and enlarged. She was pregnant and whilst in hospital gave birth to a healthy full-term child.

When suspicion fell upon Mrs. Z as being probably a typhoid carrier a sample of her urine was procured and planted out on Conradi-Drigalski plates. Many blue colonies developed, composed of bacilli which resembled the B. typhosus so closely that we believed we were dealing with a variant form of that micro-organism. At this time there were two of the woman's sons in hospital, and from the arm of one of them a few cubic centimetres of blood were taken into bile-salt glucose broth, and by this means we cultivated a bacillus having similar characters to those possessed by the mother's culture. It was the absence of motility in the first culture obtained from the woman's urine which made us hesitate to regard the bacillus as a true typhoid bacillus, more especially as it had not been isolated from a patient suffering from the disease but only from a suspected convalescent carrier. When we obtained a similar bacillus from the blood of the woman's son we concluded that we were dealing with an infective bacillus closely allied to, if not identical with, B. typhosus.

We may note that it was on the Conradi-Drigalski medium that our first culture was isolated; and this medium, in our experience, does not interfere with the motility of B. typhosus. The culture media on which or in which the bacilli were grown in order to test for motility were agar, peptone water, and bouillon, and the age of the cultures was about 15 hours. In these media no motility was at first observed. The bacilli showed active oscillation but no true movement of transposition. We observed, however, that a few bacilli in lactose bouillon possessed motility. It was probable, therefore, that we were dealing with a typhoid bacillus which showed motility only under certain special conditions. After several transplantations on agar it was noticed that a fair number of motile bacilli were observed in a hanging drop.

In order to study the development of motility in the cultures a sample of the fæces of Mrs. Z was obtained on Nov. 4th and planted out on Fawcus's modification of Conradi's brilliant-green medium. Numerous clear colonies were seen on the plates, and were found to consist of non-motile bacilli, which were readily agglutinated by an anti-typhoid serum. From one of the colonies on Nov. 5th another Fawcus plate was inoculated, and from the growth on it tubes of agar, peptone water, bouillon, and lactose bouillon were "seeded." After 16 hours the bacilli in these media were examined in a hanging drop of peptone water, and it was found that those grown on agar showed no motility, that one or two motile bacilli were seen in the peptone water, and many motile bacilli in the bouillon and lactose bouillon. Films made from the agar culture were stained for the purpose of demonstrating flagella by the Pitfield-Muir method. Flagella were seen on a fair number of the bacilli, but were not so numerous as on laboratory strains examined at the same time.

From the culture on agar, surface inoculations of four agar plates were made on Nov. 7th, and two of them were placed at 22° C. and two at 37° C. On the 8th the colonies grown at 37° C. were composed of short non-motile bacilli; whilst those at 22° C. were longer and, although showing no movement of transposition, showed rotatory movement. On the 9th the bacilli in the colonies at 22° C. were long, and all of them were actively motile and showed the curious eel-like movement of the thread forms of B. typhosus. On the 8th, from a single colony of one of the agar plates which had been kept at 37° C., another agar plate was inoculated; on the 9th, from the discrete surface colonies on this plate hanging drops were examined, and in all the fields of vision a few actively motile bacilli were seen. From one of these colonies another agar plate was inoculated on the 9th, and many of the colonies examined on the following day. In all of the colonies there were motile bacilli, though in some they were more numerous than in others. From a colony containing numerous motile bacilli another agar plate was inoculated and its colonies similarly examined. The results were as before.

The experiment was carried on for several days longer, and we always found that every colony contained motile typhoid bacilli, and that in a few colonies the motile bacilli were numerous, but that in the majority they were scanty in number. We conclude from this experiment: (1) that when motility is developed in the culture it is not due to the production of a new variety, but that all of the bacilli are capable of motility, and in a favourable environment manifest it; and (2) that at a temperature of 22° C. motility is more readily developed.

From the urine of four of the woman's sons, convalescent from typhoid fever, we cultivated a similar strain of B. typhosus. The bacilli had the usual cultural and fermentative characters of B. typhosus. They were Gram-negative, failed to liquefy gelatin, produced no fluorescence or gas in glucose neutral-red agar shake cultures. In peptone water containing lactose, dulcite, saccharose, salicin, and raffinose, no acidity was developed at the end of a week, whilst in media containing glucose, maltose, mannite and sorbite acid, but no gas was formed.

With regard to their agglutinative characters, the Z bacilli differed from the laboratory culture. The serum of a guinea-pig, which had been immunised against the laboratory strain of B. typhosus, agglutinated this in a dilution of 1 in 2000; whilst Mrs. Z's bacillus was completely agglutinated with a 1 in 500 dilution, and showed only feeble clumping with a 1 in 1000 dilution at the end of two hours.

The results of a Castellani's absorption experiment are given in Table II. The serum used was that of a guinea-pig immune to typhoid. The bacilli employed were the laboratory strain (L. S.), the bacillus isolated from Mrs. Z's urine and the bacillus isolated from the blood of the son, aged 19 years. A 1 in 20 dilution of the serum was made by taking a drop of serum from a capillary pipette, and adding to it 19 drops of normal saline solution. Several loopfuls of an agar culture of the respective bacilli were added to the diluted serum and left in contact with it for 2 to 24 hours at room and body temperature.

From this table we learn that the laboratory strain can absorb practically all the typhoid agglutinin contained in the serum, but that treatment with the Z strains leaves unabsorbed much of the substance that causes agglutination of the laboratory culture.

These bacilli were less easily agglutinated than the laboratory strain, and their haptophore groups possessed less binding capacity. Cole (4), in a paper on the agglutination of different strains of typhoid bacilli, showed that a somewhat inagglutinable bacillus could remove from an agglutinating serum fewer agglutinins than a readily agglutinable bacillus, and that greater agglutinability consists in the possession of a larger receptor apparatus. Our results confirm Cole's investigations, and show the inadequacy of the absorption test to act as a method of distinguishing and classifying groups of micro-organisms, though by its means attempts have been made to subdivide bacilli of the para-typhoid B and Gaertner groups into subclasses. Lentz (5)

TABLE II.

| Saline emulsions of bacilli used in testing agglutination. | Dilutions. | | | | | | | | Time at room temperature at which result was noted. |
|---|---|---|---|---|---|---|---|---|---|
| | 1 : 40 | 1 : 80 | 100 | 200 | 400 | 600 | 1000 | 2000 | |
| *Serum of Guinea-pig Saturated with Laboratory Strain, L. S.* | | | | | | | | | |
| L. S. ... | − | − | − | − | − | − | − | − | 2 hours. |
| | + | − | − | − | − | − | − | − | 4 ,, |
| | + | − | − | − | − | − | − | − | 20 ,, |
| Son, 19 ... | − | − | − | − | − | − | − | − | 2 ,, |
| | − | − | − | − | − | − | − | − | 4 ,, |
| | ++ | + | + ? | − | − | − | − | − | 20 ,, |
| Mrs. Z ... | − | − | − | − | − | − | − | − | 2 ,, |
| | − | − | − | − | − | − | − | − | 4 ,, |
| | + | − | − | − | − | − | − | − | 20 ,, |
| *Serum Saturated with Mrs. Z's Bacillus.* | | | | | | | | | |
| Mrs. Z ... | + ? | − | − | − | − | − | − | − | 2 hours. |
| | ++ | + | − | − | − | − | − | − | 4 ,, |
| | ++ | + | + | + ? | − | − | − | − | 20 ,, |
| Son, 19 ... | + ? | − | − | − | − | − | − | − | 2 ,, |
| | ++ | ++ | + | + ? | − | − | − | − | 4 ,, |
| | ++ | ++ | + | + | − | − | − | − | 20 ,, |
| L. S. ... | +++ | +++ | +++ | +++ | +++ | +++ | + | − | 2 ,, |
| | +++ | +++ | +++ | +++ | +++ | +++ | ++ | + | 4 ,, |
| | +++ | +++ | +++ | +++ | +++ | +++ | ++ | ++ | 20 ,, |
| *Serum Saturated with Son's Bacillus.* | | | | | | | | | |
| Son, 19 ... | + ? | − | − | − | − | − | − | − | 2 hours. |
| | + | − | − | − | − | − | − | − | 4 ,, |
| | ++ | ++ | + | + ? | − | − | − | − | 20 ,, |
| Mrs. Z ... | − | − | − | − | − | − | − | − | 2 ,, |
| | + | − | − | − | − | − | − | − | 4 ,, |
| | + | − | − | − | − | − | − | − | 20 ,, |
| L. S. ... | +++ | +++ | +++ | +++ | ++ | + | − | − | 2 ,, |
| | +++ | +++ | +++ | +++ | +++ | ++ | − | − | 4 ,, |
| | +++ | +++ | +++ | +++ | +++ | +++ | ++ | + | 20 ,, |

In this and the following table +++ indicates very large clumps; ++ clumps of moderate size; + small clumps; − absence of agglutination.

protests against the use of the absorption test as a means of classifying dysentery bacilli, since the different classes would become innumerable.

We have no doubt that our bacilli are genuine typhoid bacilli, but that their motility and agglutinin binding powers are below the normal. A rabbit inoculated with the Z bacilli afforded a potent antityphoid serum. Active motility is one of the most constant characters of the typhoid bacillus, and we have been able to find few references to bacilli similar in motor characters to our own. Fischer (6) cultivated such a bacillus from the stools of a man who died from typhoid fever, as well as from some of the five members of the man's family who were in succession attacked by the disease. Fischer's bacillus was at first quite immotile, but after a time very young cultures, grown at body temperature, showed some motility.

Our bacilli gave a positive result with Pfeiffer's bacteriolytic test. Even if the Pfeiffer test had been negative, this would not have been decisive against the view that the bacilli in question were genuine typhoid bacilli, since Besserer and Jaffé (7), and Friedberger and Moreschi (8), have shown that certain strains of typhoid bacilli (serumfesten) are not more readily bacteriolysed by immune typhoid serum than by normal serum. It is interesting to note that the serum-fast strains were, with one exception, isolated from typhoid carriers.

We have already mentioned that Mrs. Z gave birth to a child during her sojourn in hospital. When the child's blood serum was examined 15 days after birth its agglutinin content was the same as that of the mother's. The child so far has presented no symptoms of the disease.

Hicks and French (9) give an analysis of the literature bearing on the question of fœtal infection during an attack of typhoid fever in the mother. In very many instances typhoid bacilli have been cultivated from the fœtal organs. In a certain number of cases agglutinins for the typhoid bacillus have been found in the fœtal blood, but whether the fœtus produces its own agglutinins or receives them ready formed from the mother through the placenta is unknown. In our case it was unfortunate that some of the blood from the umbilical cord was not taken and tested. The agglutinins present in the child's blood may have been produced by the child's organs or have been received from the mother through the placenta or mammary gland, since the mother's blood and milk contained abundance of them. We found that more agglutinins were present in the mother's milk than in her blood serum.

Some of the milk of Mrs. Z and of a healthy puerperal woman were taken and centrifugalised. As a result a clear watery fluid collected at the bottom of the milk tubes, and it was this that was tested as to its agglutinative action; it bore about the same proportion to the milk that the serum did to the blood. In Table III. the results of these agglutinative reactions are given.

TABLE III.

| Bacillus. | Blood serum of Mrs. Z. Dilutions— | | | | | | | Time at room temperature. |
|---|---|---|---|---|---|---|---|---|
| | 1 : 40 | 100 | 200 | 400 | 600 | 1000 | 2000 | |
| Laboratory culture ... | +++ | +++ | +++ | +++ | ++ | ++ | + | 2 hours. |
| Mrs. Z's bacillus ... | +++ | +++ | +++ | ++ | + | − | − | ,, |

| Milk from— | Agglutinative action of milk on laboratory strain of typhoid bacillus. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 : 10 | 1 : 50 | 1 : 100 | 200 | 400 | 800 | 1000 | 2000 | 5000 | 10,000 |
| Mrs. Z. | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | + | + ? |
| Healthy woman. | ++ | + | − | − | − | − | − | − | − | − |

Time: 2 hours.

It is evident from this table that the milk is twice as rich in agglutinins as the blood. A possible explanation of this is the richness of milk in salts, especially calcium compounds. Crendiropoulo and Miss Sheldon Amos (10) showed that the agglutination of the cholera vibrio by its own specific serum is greatly favoured by the presence of calcium chloride. It may be, however, that the mammary gland is one of the organs concerned in the production of agglutinins. Griffon and Alrami (11) cite an instance of the transmission of agglutinins from the mother to the child through the mother's milk, the serum of the child at birth not agglutinating the typhoid bacillus. In a case reported by Kubr (12) typhoid bacilli were also found in the mother's milk.

The agglutinins in the child's blood may have been absorbed from the mother's milk. In this connexion it is interesting to recall that according to Römer and Much (13) antitoxins are destroyed in the alimentary tract except in the case of new-born animals suckling mothers whose blood and milk contain antitoxin. Römer (14), in an experiment with a foal, showed that tetanus antitoxin was only absorbed from the alimentary canal in the form of milk antitoxin (Muttermilchantitoxin), and not in the form of serum antitoxin, even when the foal was fed with larger quantities of the latter.

On Dec. 17th samples of urine from the seven affected members of the family were examined, and three of them, including that of the mother, still contained typhoid bacilli.

*Résumé.*—A house epidemic consisting of seven cases of typhoid fever is reported. The first case was the mother who had eaten cockles a fortnight before her illness and who became a carrier. The infecting bacillus was at first immotile when grown on agar, and was somewhat inagglutinable. The mother gave birth to a healthy full-term child, and her milk was very rich in agglutinins.

In conclusion, we wish to express our thanks to Professor W. St. Clair Symmers, Dr. Gardner Robb, Mr. H. W. Bailie, Dr. J. Martin, Dr. A. Trimble, Dr. J. M'Cloy, and Dr. C. Dickson for services kindly rendered during our investigation.

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Belfast.

# NOTES ON 300 CASES OF GENERAL ANÆSTHESIA COMBINED WITH NARCOTICS.

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MY object in compiling these notes was twofold: (1) to see the effect of combining narcotics with general anæsthesia; and (2) to see whether ether by the open method in my hands had any substantial advantage over other anæsthetics. I had unusual facilities for following the cases throughout, as they were nearly all inmates of the Hospital for Women, Shaw-street, Liverpool, during my term of office as house surgeon, so I was able to examine the patients thoroughly beforehand, to give the anæsthetic, and to watch them during the remainder of their residence in hospital. For convenience of arrangement I had forms printed of which I give a sample:—

*Date*..... *No*.....
*Surgeon* .....
*Patient's Name*..... *Age*.....
*Disease* .....
*Operation*.....
*Hypodermic* .....
*Anæsthetic begun* .....
*Operation begun* .....
*Anæsthetic stopped*..... *Amount*.....
*Operation stopped* .....
*Remarks* .....

The state of the patient before operation and complications afterwards were entered under "Remarks."

CASE 1.—*Date*: 1/1/10. *No.* 186. *Surgeon*: Dr. Wallace. *Patient's name*: ——. *Age*: 56. *Disease*: Carcinoma of cervix. *Operation*: Pelvic dissection. *Hypodermic*: $\frac{S}{100}\ \frac{A}{50}\ \frac{M}{6}$. *Anæsthetic begun*: 2.45, ethyl Cl; 2.46, Ormsby. *Operation begun*: 2.52. *Anæsthetic stopped*: 3.50. *Amount*: ℥iiiss. *Operation stopped*: 4.5. *Remarks*.—Much wasted; weak. Edentulous, therefore ether. Taken well. 3.27-37 no ether. Aseptic ergot given. Vomited three times. Bronchitis for ten days afterwards.

The anæsthetics used were: 1. Ether by open method. 2. Ether by closed method, using both Ormsby's and Clover's inhalers. 3. Chloroform on a Schimmelbusch's mask. 4. Mixtures of chloroform and ether in different proportions and also A.C.E. 5. Ethyl chloride, using both the simplex inhaler and Ormsby and Hedley's; the last named I found the best. 6. Sequences of different anæsthetics. Times used: open ether, 143; closed ether, 103; ethyl Cl, 143; mixtures, 27; and chloroform, 70.

The narcotics used were:—

1. Morphine in doses varying from gr. 1/8 to 1/4, sometimes combined with hyoscine or scopolamine in doses of gr. 1/180 to 1/50, and usually combined with atropine gr. 1/200 to 1/50.

2. Hyoscine and scopolamine. There did not seem to be the marked difference between these two which has been claimed by some observers. They were given in doses gr. 1/180 to 1/50, sometimes combined with morphine, sometimes not.

3. Veronal used by several observers in Germany, who report favourably on it. Given in doses varying from gr. 5 to 30 from one to two hours before operation in hot water or weak tea. This drug was only used seven times, as about that time there appeared in the medical journals one or two cases of veronal poisoning. I never saw any ill result from it, though one case was certainly peculiar.

CASE 2.—*Date*: 11/3/10. *No.* 280. *Surgeon*: Dr. Briggs. *Patient's name*: ——. *Age*: 29. *Disease*: Lacerated perineum. *Operation*: Perineorrhaphy. *Hypodermic*: Nil, because of hurry. *Anæsthetic begun*: 2.26. $C_2E_3$ on open mask throughout. 2.30, ℥ii. *Operation begun*: 2.40. *Anæsthetic stopped*: 2.50. *Amount*: ℥v. *Operation stopped*: 2.56. *Remarks*.—Slight subacute bronchitis. Veronal gr. xxx. given 1½ hours before. Patient fast asleep but struggled slightly during induction of anæsthetic. Pupils small throughout. Slept all night, next day and next night and another. No vomiting. Has no recollection of anything *re* operation.

4. Chloral and bromide only used a few times. One was the patient who had taken $\frac{M}{4}\ \frac{H}{100}\ \frac{A}{150}$ nightly for some weeks before admission; another was an alcoholic.

CASE 3.—*Date*: 12/2/10. *No.* 210. *Surgeon*: Dr. Wallace. *Patient's name*: ——. *Age*: 24. *Disease*: Hydroperitoneum cum hypertrophic cirrhosis of liver. *Operation*: Abdominal drainage. Laparotomy. *Hypodermic*: $\frac{S}{100}\ \frac{A}{50}\ \frac{M}{6}$. *Anæsthetic begun*: 11.22. Ether in Clover throughout. 11.27, under. *Operation begun*: 11.40. *Anæsthetic stopped*: 12.7. *Amount*: ℥ii. ½. *Operation stopped*: 12.12. *Remarks*.—For some two or three weeks has had $\frac{H}{100}\ \frac{A}{150}\ \frac{M}{4}$ nightly, till last four nights given pot. brom. gr. xxx., chloral hyd. gr. xx., at 9.30. Took anæsthetic very well. No vomiting. Died suddenly 21/2/10.

The narcotics were given to consecutive cases, not picked ones. So several cases of heart disease, some profoundly anæmic and one or two suffering from phthisis, were included in the series and no contra-indication was discovered.

CASE 4.—*Date*: 16/11/09. *No.* 120. *Surgeon*: Dr. Wallace. *Patient's name*: ——. *Age*: 33. *Disease*: Dysmenorrhœa. *Operation*: Posterior section. Dil. and curet. *Hypodermic*: $\frac{H}{100}\ \frac{A}{50}\ \frac{M}{6}$. *Anæsthetic begun*: 4.30. Ethyl Cl throughout. 4.32, under. *Operation begun*: 4.35. *Anæsthetic stopped*: 4.45. *Amount*: 28 c.c. *Operation stopped*: 4.45. *Remarks*.—Has active late secondary syphilis. Has phthisis of both apices, most at left. Vomited three times.

CASE 5.—*Date*: 4/3/10. *No.* 260. *Surgeon*: Dr. Briggs. *Patient's name*: ——. *Age*: 30. *Disease*: Lacerated perineum. Right ovarian cyst, simple. Left salpingo-oöphoritis. *Operation*: Dil. and curet. Perineorrhaphy. Trachelorrhaphy. Right oöphorectomy. Left salpingo-oöphorectomy. *Hypodermic*: $\frac{A}{50}\ \frac{M}{4}$. *Anæsthetic begun*: 11.13. Ethyl Cl in Hedley. 11.15½. Open ether. *Operation begun*: 11.23. Room changed, 11.47. *Anæsthetic stopped*: 12.13. *Amount*: ℥vi. *Operation stopped*: 12.20. *Remarks*.—Goitre and lateral nystagmus. Small theatre 65°. Vomited very slightly twice under the anæsthetic. Nine stumps removed. Vomited three times same night but only slightly.

The ages of the patients varied from 17 to 72 years. The operations I divided into two classes: (1) Abdominal, in which the time of anæsthetic varied from 16 to 139 minutes with an average of 60·8 minutes; and (2) vaginal and others. The time varied from 3 to 100 minutes or omitting examinations, 15 to 100 minutes with an average of 31·6 minutes.

The effects I attribute to the narcotics are:—(*a*) Before the operation the patient is much more tranquil and may become slightly amnesic. In fact, some patients went to sleep whilst waiting to be taken to the operating theatre.

CASE 6.—*Date*: 11/3/10. *No.* 277. *Surgeon*: Dr. Briggs. *Patient's name*: ——. *Age*: 40. *Disease*: Lacerated cervix. Lacerated perineum. *Operation*: Dil. and curet. Trachelorrhaphy. Perineorrhaphy. *Hypodermic*: $\frac{A}{50}$. *Anæsthetic begun*: 10.46, open ether. 10.51, under, ℥i½. *Operation begun*: 10.57. *Anæsthetic stopped*: 11.27. *Amount*: ℥iv. *Operation stopped*: 11.33. *Remarks*.—Veronal gr. xxx. before anæsthetic 2 hours. Asleep. Mitral stenosis. Edentulous. Very well taken. Very neurotic. Pupils contracted all the time. Hæmorrhage same night. No vomiting.

(*b*) The anæsthetic (which to many is more terrible than the actual operation) is not dreaded, and therefore taken better and usually without any stage of excitement.

CASE 7.—*Date*: 22/11/09. *No.* 130. *Surgeon*: Dr. Gemmell. *Patient's name*: ——. *Age*: 46. *Disease*: Prolapse. *Operation*: Perineorrhaphy. Ventrofixation. *Hypodermic*: $\frac{H}{50}\ \frac{A}{\ }$. *Anæsthetic begun*: 1.13, open ether. 1.22, under, ℥iiss. *Operation begun*: 1.29, ℥iv. *Room changed*: 1.55. *Anæsthetic stopped*: 2.20. *Amount*: ℥viiss. *Operation stopped*: 2.29. *Remarks*.—Took anæsthetic but very quietly, no need for holding. No stage of excitement. Slight mitral stenosis. No vomiting.

(*c*) The induction is generally quicker, but occasionally the patient becomes *too* placid, breathes in a shallow manner, and so the time is prolonged.

CASE 8.—*Date*: 8/3/10. *No.* 273. *Surgeon*: Dr. Wallace. *Patient's name*: ——. *Age*: 30. *Disease*: Lacerated perineum. Left simple ovarian cyst. *Operation*: Perineorrhaphy. Left oöphorectomy. Int. round ligament operation. *Hypodermic*: $\frac{S}{100}\ \frac{A}{50}\ \frac{M}{6}$. *Anæsthetic begun*: 1.3, Clover throughout. 1.14, under, ℥i. *Operation begun*: 1.18. *Anæsthetic stopped*: 2.8. *Amount*: ℥iii. *Operation stopped*: 2.14. *Remarks*.—Stolid shallow breather, therefore c. scopolamine = long induction. Slight vomit of foul-smelling watery fluid part way through

anæsthetic. Gastroptosis. She often has attacks of vomiting. Vomited once.

Many of the cases were first anæsthetised with ethyl chloride, so that time might be saved, and there was never any trouble due to the ethyl chloride, though in one or two cases where the change to the next anæsthetic was not made quickly the patient came partly round.

One case was very interesting, as the patient's own medical attendant told me he had given 2 oz. of pure chloroform to induce anæsthesia a few days before.

| Anæsthetic. | Average in minutes; time of induction. | Average amount used. |
|---|---|---|
| Open ether ... ... | 8·68 | ℥1·65 |
| Chloroform ... ... | 5·58 | ʒ2·44 |
| Closed ether ... ... | 7·7 | ? |
| $C_2F_2$ ... ... ... ... | 5·3 | ʒ4·2 |
| Ethyl Cl ... ... ... | 1·5 (from ¼ to 4 min.) | In 11 out of 138 more than 1 dose used. |

(*d*) The amount of anæsthetic used is much less: this is especially noticeable in the case of open ether. Barton[1] states that the ether by the open method which he uses amounts to 14 ounces per hour. I found in these cases the amount averaged as follows:—

Open ether... ... ... ... ... ℥vii. in first 67 minutes.
Closed ether ... ... ... ... ʒiv. ,, 64 ,,
Chloroform... ... ... ... ... ʒix½. ,, 64 ,,

In one of the long cases I found that the amount of ether used was, on four layers of gauze by the open method, during the first half-hour, 4½ oz.; to end of the second half-hour, 7 oz.; of the third, 10 oz.; and of the fourth, 12 oz.

(*e*) Salivation and excess of mucus in the throat did occur once or twice during anæsthesia, but was very rare. During the total number of anæsthetics (about 500) which I gave at the Hospital for Women I had to use the gag once, the stick sponges twice, and the tongue forceps once.

(*f*) Post and anæsthetic vomiting was rare unless chloroform (or a mixture containing it) had been used. When it did occur vomiting was usually only once and that slight.

CASE 9.—*Date:* 29/11/09. *No.* 149 (?). *Surgeon:* Dr. Gemmell. *Patient's name:* ——. *Age:* 41. *Disease:* Lacerated cervix. Retroversion. Small cyst of right ovary. *Operation:* Dil., curet. Trachelorrhaphy. Right ovarian cyst punctured. Ventrofixation. *Hypodermic:* $\frac{H\ A}{50}$ 30 minutes before. *Anæsthetic begun:* 2.14, open ether; 2.23 under, ʒiii. Room changed 2.56. *Operation begun:* 2.28. *Anæsthetic stopped:* 3.15. *Amount:* ʒvii. *Operation stopped:* 3.19. *Remarks.*—Neurotic. No vomiting.

In two cases of general peritonitis which came on after operation vomiting occurred once only in the first 12 hours, but after that continued till death.

(*g*) Shock seemed to be lessened.

(*h*) Post-operative pain was very much minimised, in many cases absent. Some of the patients who had undergone other operations were very emphatic about the difference. There was good opportunity of judging this, as there seems to be a type of gynæcological patient who returns about every six months to have another operation—some of them even six or seven times. One woman I anæsthetised four times, and I know she had 11 anæsthetics, possibly several more since then.

CASE 10.—*Date:* 19/10/09. *No.* 43. *Surgeon:* Dr. Wallace. *Patient's name:* ——. *Age:* 28. *Disease:* Vesico-vaginal fistula. *Operation:* Repaired. *Hypodermic:* $\frac{H}{100}\ \frac{A}{50}\ \frac{M}{6}$. *Anæsthetic begun:* 2.40, $CHCl_3$; 2.46, Ormsby. *Operation begun:* 2.47. *Anæsthetic stopped:* 3.35. *Amount:* ʒiii. *Operation stopped:* 3.40. *Remarks.*—Eleventh operation on same patient. Took anæsthetic very well. Hæmorrhage two days after, but stopped by itself. Vomited slightly once.

The narcotic, or rather the combination, that I found most satisfactory was $\frac{M}{4}\ \frac{H \text{ or } S}{100}\ \frac{A}{100}$. I found open ether to be in my hands the best anæsthetic except where there was much chest trouble for the following reasons: 1. It was much safer and shock was much less, specially in long operations, such as Wertheim's pelvic dissections. 2. It was seldom followed by vomiting. 3. There was less chest trouble than with the closed method. I had good opportunities of judging this, as Dr. Wallace preferred ether in a closed inhaler to open ether, and there was more chest trouble in his wards than in the others.

CASE 11.—*Date:* 21/10/09. *No.* 49. *Surgeon:* Dr. Gemmell. *Patient's name:* ——. *Age:* 34. *Disease:* Carcinoma of cervix. *Operation:* Wertheim's abdominal panhysterectomy and pelvic dissection. *Hypodermic:* $\frac{H}{50}\ \frac{A}{50}$. *Anæsthetic begun:* 1.7, $CHCl_3$, ʒiv. 1.14, open ether. *Operation begun:* 1.20. Abd. part 1.38. *Anæsthetic stopped:* 2.53 *Amount:* ʒix. *Operation stopped:* 3.0. *Remarks.*—No vomiting. Bronchitis one day.

CASE 12.—*Date:* 17/3/10. *No.* 295. *Surgeon:* Dr. Gemmell. *Patient's name:* ——. *Age:* 49. *Disease:* Carcinoma of cervix. *Operation:* Wertheim's pelvic dissection. *Hypodermic:* $\frac{M}{4}\ \frac{H}{100}$. *Anæsthetic begun:* 1.12, open ether. 1.19, under, ʒij. *Operation begun:* 1.23. Room changed 1.25. *Anæsthetic stopped:* 3.6. *Amount:* ʒxi. *Operation stopped:* 3.12. *Remarks.*—Slight mitral stenosis. Edentulous. ʒviij. for first hour. ʒx. in 1½ hours. Vomited five times.

I have to thank the medical staff of the Hospital for Women for their encouragement in compiling these notes.

Burscough, Lancs.

[1] The Practitioner, November, 1910.

# PROLAPSUS UTERI: VENTRIFIXATION.

BY JOHN O'CONOR, M.A., M.D.T.C.D.,
SENIOR MEDICAL OFFICER, BRITISH HOSPITAL, BUENOS AIRES.

THIS is a subject to which I have given much consideration, for during the past 16 years I have performed hundreds of operations for fixation of the uterus to the anterior abdominal wall. At first, I presume, like many beginners, I was tempted by the apparent simplicity of the Alexander procedure, but soon I found that in many flabby individuals who suffered from procidentia the round ligaments were mere fatty degenerated expressions of anatomy, which could not bear even the most gentle traction, and consequently were unsuitable for any reefing process. This experience combined with two obvious potential dangers—the formation of "another" peritoneal fossa for the reception of errant intestine and the not infrequent coexistence of annexal adhesions—sufficed to make me abandon the method. And in order to show that my fears were not illusory, I wish to mention that I have recently heard of a case operated on by a colleague of mine in which during the operation the patient was noticed to become suddenly blanched, the pulse being small and rapid, and the abdomen becoming distended. Immediate cœliotomy was performed, and an intraperitoneal rupture of the round ligament was dealt with, but the patient had lost so much blood in a few minutes that death supervened some hours later, in spite of all known forms of resuscitation—"pelvic adhesions." In a recent number of the *British Medical Journal* I read a case reported by Dr. Gussisberg, where intestinal obstruction followed an Alexander operation, the bowel having entered into a recess formed between the womb and the anterior parietal wall.

Some years ago I was induced to adopt the method advocated by that brilliant surgeon, the late Mr. Greig Smith—viz., to aim for sero-fibrous union, which was effected by suturing a scarified surface of the womb to the recti muscles. This plan has undoubtedly given me fairly satisfactory results, but I have found that from three to six years afterwards in some 20 per cent. of the cases there is a tendency to recurrence. I should mention that I have always combined Mr. Greig Smith's operation with excision of the cervix, if elongated or hypertrophied, and with anterior or posterior colporrhaphy, or both, as the vaginal prolapse demanded. But as one recurrence stands out more in surgical perspective than five successes, I have for some few years been carefully studying the matter in order, if possible, to find a method on the permanency of which I could rely.

Frequently, in performing hysterectomy, I have been impressed, on dividing the anterior peritoneal reflection, with the firm and resistant structure of the cervix—a fact well known to every student of anatomy, for, as Cunningham states, "The muscular coat of the cervix (tunica muscularis cervicis) contains more connective and elastic tissue than that of the body, and hence the greater firmness and rigidity of the cervical part of the uterus." As my experience tended to prove that permanent reliance cannot be placed on any method of suturing the fundus, I adopted the following procedure, with, so far, most promising results.

The abdomen having been opened by a low central incision,

the womb is drawn forwards with the left hand, and a small transverse cut is made at the site of the reflection of the peritoneum on the anterior surface of the uterus (exactly similar to the preliminary peritoneal incision in hysterectomy). With the handle of a knife or with the right index finger, the peritoneum with the bladder is pushed downwards and forwards, until a space of about an inch square is left on the anterior surface of the cervix. The peritoneum on each side of this exposed area is seized with pressure forceps, and is retracted out of the way, while I pass three strong catgut sutures, about one-third of an inch apart, through the denuded surface of the cervix, deep enough to get a firm grip of the cervical muscular coat. The needles having been removed, I draw the ends out respectively on each side through the recti muscles, by the aid of that most handy instrument, Childe's ligature forceps. Thus the peritoneum is excluded, and the exposed cervical connective tissue is brought into direct apposition with the recti. Before tying these three fixation sutures I always close the peritoneal layer of the parietal wound by a continuous catgut suture, the first few loops of which I pass also through the uterine peritoneum just above the denuded area, in order that no raw surface may be left for the omentum or the intestine to adhere to. The three cervix-recti sutures are next tied, and the muscles are approximated through the remainder of the incision by another continuous catgut suture, the rectus sheath is similarly closed, and the skin is united by a subcuticular silk thread.

In conclusion, I wish to invite attention to a further extract from Cunningham: "The position occupied by the uterus in the pelvis is not always the same, as it varies to some extent with the condition of the neighbouring organs; the lower cervical part is, however, much more firmly fixed in place than the body and fundus, which possess a considerable amount of mobility."

I think there cannot be the least doubt that the dominant factor in uterine prolapse is the relaxation of the cervical attachments, and I claim that this simple ten-minute operation is working on anatomical lines in that it leaves the naturally mobile fundus free, and reinforces the immobility of the cervix which is supposed normally to be comparatively fixed, and which is vouchsafed by all anatomists as being the keystone of support for the pelvic organs.

It is almost superfluous to observe that this method affords direct inspection of the pelvic contents, and an opportunity of dealing with any pathological condition which may coexist. And finally it may be worthy of note that in this operation the two most resistant structures (cervix and recti) in the lower abdomen are utilised.

Buenos Aires.

## SOME COMMON FORMS OF DEAFNESS.[1]

BY W. H. KELSON, M.D., B.S. LOND., F.R.C.S. ENG.,
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COMMENCING at the external auditory meatus, and working from without inwards, I must first mention cerumen, which, though in many cases it may be quite a simple matter for diagnosis and treatment, has nevertheless sundry traps and pitfalls connected with it. In the first place, although wax generally appears as a yellowish or brownish greasy mass, this is by no means always the case, for it may be hard, horny, and black, and though quite insensitive as a rule it may be surrounded by such an amount of dermatitis, or be so closely in contact with the membrana (forming a mould for it in some cases) as to give decided pain on our making any attempt to move it with the probe. And then, again, one must remember that, particularly where dust and dirt abound, a deceptive appearance is likely to be produced and it may not be wax at all, or only in part, the bulk consisting of dry blood, pus, cholesteatomatous matter, epithelial débris, granulations, polypi, or foreign bodies.

And just one word of warning here. If your patient is markedly deaf—say, for instance, if he cannot hear your watch at all—although you may be certain that cerumen is blocking his meatus, be careful to avoid saying, "Oh, it is only wax, and I can soon put you right," as is often said, for it is quite probable that he has an otitis media or some other disease of the ear in addition to the cerumen, and after removing this latter you will find that you have not cured your patient's deafness, and will then have to climb down somewhat ignominiously.

Having carefully examined the plug with mirror, speculum, and probe, and having come to the conclusion that there is a fair chance of success as regards removal by syringing without previous preparation try to separate the plug from the meatal wall a little with a probe so as to let the stream of water more easily detach it, and then straightening the meatus by drawing the ear somewhat backwards and outwards, direct a stream of water, at a temperature of about 38° C., into the crack which you have made or found between the plug and the meatal wall. If these efforts are not successful it will be better to desist and dry the ear, and prescribe some drops, remembering that you are dealing with a delicate organ, and that anything like rough or violent syringing is strictly to be avoided.

Now, as to the drops, they may be divided into three varieties: (1) those which contain things which fizz and bubble and so tend to disintegrate the mass, as peroxide of hydrogen; (2) those having a saponifying effect on the fatty material, such as bicarbonate of soda; (3) those having a softening effect, such as oil and glycerine. Each of these has its supporters, and any will serve. In some cases, especially where the wax is mixed up with hair and epithelial débris, repeated soakings and syringings have to be performed before the meatus can be thoroughly cleared. The after-effects may be somewhat noteworthy. Either the hearing may be hyperacute or even painfully acute, though this gradually planes down to normal; or there may be a comfortable feeling of an obstruction having been removed, with a return of normal hearing. Or (and this is especially so if the case has been an obstinate one, and too much force has been used in syringing) there may be dulness of hearing and tinnitus, which, however, in most cases gradually wear off.

Again, say a patient comes complaining of some dulness of hearing, which has come on recently, especially with a feeling of fulness and throbbing in the ear, with a good deal of pain and tenderness on manipulation of the external ear, and especially on making pressure on the tragus, one may suspect furunculosis, in other words, boils in the meatus. The pain is considerable and quite sufficient often to prevent the patient sleeping, although it is not so deep-seated as in acute otitis media. On examination—which in the first instance must be made by concentrating a strong light on the meatus, but without a speculum, as the introduction of this instrument might prove extremely painful—the walls of the meatus will be found swollen and perhaps in contact, so that no view of the drum can be obtained. The colour may be pale or red, varying with the stage of the disease, and also as to whether it is superficial or deep-seated. On an examination being made very gently with a probe the parts will generally be found to be exquisitely tender, and if suppuration has come to the surface pus will exude. The best treatment will be free incision under nitrous oxide gas, preceded by syringing with carbolic acid, 1 in 20. If this operation is declined, or the furuncle is freely discharging, and there is no tension whatever, hot applications together with the use of glycerine of carbolic acid will be best. It is well to remember that this disease has a marked relapsing tendency, and that therefore treatment should be kept up and the ear kept under observation considerably after actual symptoms have subsided. Also the general health should be attended to and the urine examined. The amount of deafness varies very much in furuncle of the meatus. It may hardly be noticeable, but if the meatus is quite closed by the swelling it is, of course, much more marked.

Before leaving the meatus we must not forget that not infrequently in children, and occasionally in adults, deafness may be due to the presence of a foreign body, when the question, of course, is how to extract this same without damage to the ear, remembering that pain, abscess of the brain, and even death have been caused by rough treatment in endeavouring to extract a foreign body. The first step is carefully to inquire and examine as to the nature and position of the body, and it is well at the outset to instil into the meatus a few drops of a 20 per cent. solution

[1] Patients illustrating the various kinds of deafness were shown at a demonstration at the Medical Graduates' College and Polyclinic on Feb. 22nd, 1911.

of cocaine, or adrenalin. In the vast majority of cases gentle syringing, after a suitable interval, will be the best treatment; probably 90 per cent. of all foreign bodies can be removed in this way. If this fails, and the patient is restless and the ear tender, especially in the case of young children, a general anæsthetic will be necessary. This having been administered, the syringing should be tried again, and if it fails, one must try one of the numerous hooks, forceps, bent wires, and probes which have been devised with a view to getting hold of or getting behind the body, and so extracting it. Such ideas as those of glueing on a wooden probe to the foreign body, and so extracting it, are more ingenious than practical. In very bad cases, with a rising temperature and signs of deep-seated mischief, the foreign body being hopelessly jammed in the ear, it will be necessary to operate, turning the ear forwards and getting at the deeper points from behind, but these cases are rare.

Passing on now to deafness due to affections of the middle ear, together with which may be put those of the membrana tympani, we first of all note suppuration and its sequelæ. This may begin either in an acute otitis media, such as is commonly seen in scarlet fever and other such diseases, which may either entirely dry up with but little permanent damage to the ear, or destroy the ear as a hearing organ altogether, or become chronic with the formation of granulations, polypi, and carious bone, &c.; or it may never pass through the acute stage at all, but be due to some chronic disease, such as tuberculosis.

On examining a suppurating ear we may find, after cleansing, various conditions according to the chronicity of the disease, such as the destruction in whole or part of the membrana tympani and ossicles, caries of the walls, perforations, adhesions, cicatrices, polypi, granulations, and cholesteatomatous matter; and our lines of treatment must be: (1) To see that there is sufficient drainage; (2) to keep the ear clean and remove all dead matter, applying antiseptics, those most generally used being boric acid and alcohol and hydrogen peroxide; and (3) to preserve and possibly improve the hearing. Whether the ear should be syringed or not is rather a moot point, some holding that the treatment tends to diffuse the disease and in some cases is not necessary. But I certainly hold that the ear cannot always be cleansed without it, but in any case it should be carefully dried afterwards. Suction by means of Siegle's speculum is useful in some cases to extract the discharge.

When symptoms indicate extension of the disease to deeper points, of course more severe measures, such as the radical mastoid operation, have to be considered. One important point must here be noted as regards the hearing, which is not, I think, sufficiently emphasised in books on the subject, and the practitioner should be warned and prepared for it—namely, that as the patient's ear heals and becomes dry, suppuration ceasing, the hearing, much to his annoyance, may get worse; and although later on you may be able to improve this somewhat by inflation, you may have to console him by saying that at any rate a dry ear is infinitely preferable to a suppurating one.

Operations for improvement of hearing by division of post-suppurative adhesions unfortunately have given only very poor results; occasionally, however, in such cases where, after suppuration, the hearing is very defective, we may get improvement by means of a so-called artificial drum, and it is certainly worth while making the trial. No elaborate machine or instrument is needed—in fact, these should be avoided. A piece of cotton wool moulded into a small ball, a suitable pair of forceps, an ear speculum and a good light are all that are required. With patience and perseverance you may perhaps be able to place the ball of wool in such a position, probably over the head of the stapes, as to markedly improve the patient's hearing, and having found that there is such a spot he will be able himself with care to place the so-called artificial drum in correct position.

Coming now to non-suppurative affections, we may look upon chronic middle-ear catarrh as one of the commonest causes of deafness. It may be the result of repeated colds in the head or sore-throat, or undue indulgence in tobacco or alcohol—in fact, anything likely to set up catarrh, such as adenoids, hypertrophic rhinitis, &c. The deafness is often insidious in onset and varies in severity, being worse when the patient has a cold and in damp weather. The function of the Eustachian tube is in abeyance, and the membrana tympani becomes thick and indrawn and often more or less immobile and adherent to the deep parts. Inflation per the Eustachian tube may be difficult owing to the swelling of the mucous membrane, and is in the early stages accompanied by squeaking noises and moist sounds. On testing with a tuning-fork, say of middle tone, giving 128 double vibrations per second (C), it will be found that when the fork is placed on the forehead of the patient he hears it longer in the deafer ear (Weber's test); and if the fork is applied to the mastoid process, and when its vibrations cease to be heard by the patient, if it is placed at his meatus, on the same side but not touching the ear, he will be unable to hear it (Rinne's test, negative); or if placed on the vertex he hears it longer than a normal person (Schwabach's test). The patient may or may not hear better in a noise (paracusis Willisii).

As to treatment, in the first place you must inquire into the habits of the patient, with a view to prevention of catarrh, and deal with any post-nasal catarrh and hypertrophic rhinitis there may be present. Alkaline washes to the nose and iodine paint to the post-nasal space are very useful, but above all keep the ear well inflated by Politzer's bag or the catheter. In cases of a particularly obstinate character with Eustachian obstruction, Eustachian bougies are sometimes used, and some surgeons are fond of injecting drugs such as parolein, menthol, &c., into the middle ear through a Eustachian catheter, or through a cannula passed through it, but the results are apt to be disappointing. The injection of hot air I have several times found to produce marked improvement. Electric massage has also been recommended.

Another unfortunately common cause of deafness is the disease known as oto-sclerosis. This is not an affection of the mucous membrane, but a disease of the capsule of the labyrinth consisting of the formation of new bone in some parts and absorption in others, resulting in more or less fixation of the stapes, and often blocking up of the round and oval windows with bony growths. This disease is more common in middle age, but may occur in young or old persons. The cause may be said to be unknown, though the blame has been laid on gout and syphilis. Certainly there seems to be a hereditary tendency in the disease. Tinnitus often precedes the deafness, and is a notable symptom. The deafness is apt to be steadily progressive. The membrana tympani appears practically normal in most cases. Inflation can be easily accomplished, but does not improve the hearing. Rinne's test is negative, paracusis well marked. All the above, taken together, give fairly conclusive evidence that we have present a case of oto-sclerosis, the treatment of which disease has so far been very unsatisfactory. Numerous drugs, such as iodide of potassium, phosphorus, and arsenic, have been tried with but little success.

As a less common cause of deafness, there is disease of the internal ear. This may be due to syphilis, malaria, gout, and other diseases tending to produce variations in the intra-labyrinthine pressure. The signs are marked deafness, especially for high notes. There is also bad bone conduction. Rinne's test is positive; by Weber's test the sound is referred to the better ear, thus giving results opposite to what are found in middle-ear catarrh. The prognosis is bad in these cases, but iodide of potassium and blistering should be tried, and the cause if possible should be found and treated.

Cavendish-place, W.

EAST-END MOTHERS' LYING-IN HOME.—The report of this institution for the year 1910 makes an earnest appeal for increased financial support. The home, which is entirely unsectarian, is maintained for the purpose of treating poor married women during childbirth and also for the training of midwives and nurses for attendance on the poor at their own homes. During the year ending December, 1910, 558 in-patients were delivered of 561 children born alive. Three children were stillborn, three in a state of maceration, and there were nine sets of twins. Among the out-patients 1039 women were delivered and 1037 children were born alive. The stillbirths numbered 6, macerated fœtus 14, and there were 19 sets of twins. Mr. M. Corsham Corner, the honorary visiting medical officer, states that among the total number of cases attended not a single death has occurred, although a few cases of serious illness have arisen in connexion with the lying-in period.

# Medical Societies.

## HARVEIAN SOCIETY OF LONDON.

*Fractures of the Patella and their Surgical Treatment.*

A MEETING of this society was held on March 30th, Sir JOHN BROADBENT, Bart., Vice-President, being in the chair.

Mr. C. B. LOCKWOOD delivered the Harveian lecture on Fractures of the Patella and their Surgical Treatment. He said that all fractures into joints were serious, and a broken knee cap especially so, from its liability to end in bad union and a weak limb with the chance of fresh accidents and refracture. Fractures of the opposite knee-cap were not infrequent; he emphasised the importance of this in view of the Workmen's Compensation Act. The treatment required was that which gave a perfect result in the quickest time. He contrasted treatment with and without operation; without operation there was practically no risk to life nor of actual loss of a limb; with operation death was not unknown, and he had known amputation necessary from suppuration; these risks, however, were very remote. He described the methods of treatment without operation, and said that the best that could be hoped for was strong fibrous union, bony union being prevented by intrusion of the dorsal aponeurosis. He described cases of fracture of both patellæ, one treated without and the other with operation, and other cases treated without operation, with the following results: (1) good fibrous union with a useful limb; (2) good fibrous union with wasted muscles and a defective limb; (3) wide separation and a useful limb; and (4) wide separation and a defective limb. The treatment was lengthy and averaged a year. The value of successful operative treatment was the small amount of time lost, patients being sometimes able to resume work in six weeks. He had operated upon 37 patients, and he described his method of operation, insisting upon the propriety of the open method, since details with regard to the fragments could not be ascertained by clinical methods. He adopted a semilunar incision on the inner side of both fragments: the joint was explored and blood and clot removed; the dorsal aponeurosis was then cut away from between the ends of the bone, and the torn capsule was trimmed with scissors. A drainage tube was placed at the outer side of the joint in the early stage of preparation, which was passed through the capsule in front of the external lateral ligament, not through the original skin incision. The fracture was usually transverse (29 cases), in two cases it was T-shaped, in two cases a piece was broken off the outer angle of the lower fragment and in one off the inner angle, in two cases the fracture was Y-shaped, and once it was comminuted. Fracture might occur by muscular action. He described the mechanics of the joint and the liability to fracture by this means. At other times fracture occurred through direct violence. He used annealed silver wire for suturing the patella, which he preferred to gut or kangaroo tendon. The behaviour of silver wire in the tissues was not well known, and he described cases where the wire had apparently corroded. He preferred a single stout strand, and intended it only to keep the fragments in position, relying on bony union for strength; he preferred not to perforate the articular cartilage, though he knew of no bad results when this had been done. The loops had to be arranged according to the nature of the fragments, but the knot was kept high to be out of the way of pressure in kneeling; the wire had occasionally to be removed. After the operation Neville's or Mackintyre's splint was used and the drainage-tube was removed after 48 hours or more. He had seen skiagrams from 12 out of 37 patients; in 11 there was good bony union and a useful limb; some had slight diminution in their degree of flexion scarcely noticed by the patients. He did not think bony union occurred before three months. He employed gentle movements and massage, but used some kind of restraining splint to the end of that time. He considered that operative treatment gave far better results than non-operative and in a far shorter time, and the advantage gained far outweighed the risks.

## ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

*Three Cases of Paratyphoid Fever.—Etiology and Treatment of Diabetes Mellitus.*

A MEETING of this section was held on March 10th, Sir JOHN MOORE, the President, being in the chair.

Dr. GEORGE PEACOCKE described three cases of Paratyphoid Fever among the nursing staff of a hospital in November, 1910. The symptoms in all cases closely resembled those of enteric fever. The onset was sudden, with fever, general malaise, headache and pain in the neck, and constipation. Rose-coloured spots were present on the abdomen in two cases, but in none was the spleen palpable. The duration of pyrexia varied from two weeks to four weeks. Phlebitis complicated one case and gall-stones the other. Convalescence was in all cases prolonged. The agglutination test with Eberth's bacillus was negative in all the cases, but clumping occurred with a bacillus isolated from the urine of one case. This bacillus was subsequently found to be Paratyphoid A.—Dr. J. A. SCOTT said his attention was drawn to the fact that he failed to get the Widal reaction. He had an opportunity of examining a similar case in which he failed to get a reaction with typhoid bacilli. There was a peculiar condition in which the clumps consisted of only two or three bacilli, and in which he always felt in doubt whether to call the reaction positive or negative. When such clumping with typhoid bacilli occurred further investigation often proved the case to be one of paratyphoid fever.—Dr. J. M. DAY did not think that paratyphoid was necessarily a mild disease, and mentioned the case of a man who died from this disease.—Dr. W. D. O'KELLY, Dr. H. T. BEWLEY, Dr. T. T. O'FARRELL, and the PRESIDENT also spoke.—Dr. PEACOCKE replied.

Dr. W. M. CROFTON, in a paper on the Etiology and Treatment of Diabetes Mellitus, came to the conclusion that the breakdown of carbohydrates, fats, and proteins in the tissues was due to compound ferments, consisting of a heat-labile part produced by the tissue cells and a heat-stable part, co-ferment, formed by the pancreas. When the pancreas was removed the tissue metabolism of all three was thrown out of gear. In animals the removal of the pancreas produced a complete picture of diabetes, and in diabetes lesions of the pancreas were frequently found. These lesions were often of the much-discussed islands of Langerhans. Since the pancreas was induced to secrete by the hormone secretin, absence of it would lead to glycosuria, and thus would account for cases of diabetes in which the pancreas was found normal. He discussed the cases of glycosuria corresponding to the experimental glycosuria produced by overfeeding with carbohydrate, puncture of the floor of the fourth ventricle, the exhibition of phloridzin, and that produced by adrenin; but he came to the conclusion that all cases of true diabetes were due to functional or organic disease of the pancreas. He thought that absence of secretin was due to inflammation of the intestinal mucous membrane produced by microbes, and that one common source of the infection was pyorrhœa alveolaris. If the lesion was in the pancreas it might be due to blocking of the ducts, to spread of microbes from the intestine, or to infection of the gland through the blood stream. He gave certain facts in support of the infective origin of the disease in many cases. These considerations of etiology gave two complementary lines of treatment: first, the removal of the infection by specific means—viz., by inoculation with vaccines; second, the replacement of the absent substance—viz., secretin, or co-ferment, or both. The co-ferment could be obtained commercially as hormonadin. By these means he had obtained marked improvement in many cases, while the patient was always kept on the ordinary full diet. He did not think a "cure" possible in most cases, as the essential tissues were destroyed or too badly damaged to recover when the patient came under treatment. But he did think it possible to enable a patient to live an ordinary life on an ordinary diet and to prevent the disease progressing.—Dr. T. G. MOORHEAD said Dr. Crofton's treatment of diabetes was built up by hypothesis upon hypothesis. What proof existed that Dr. Crofton's extract contained a co-ferment in this fluid? The only proof that he could find was the statement published by Dr. Crofton last year that

this fluid enabled the body to burn up its carbohydrates better, an obvious *petitio principii*. As regarded secretin, Dr. Starling stated that this substance could not be absorbed from the intestine, and the speaker said that in his experience this drug was valueless in pancreatic diabetes. Dr. Crofton had stated that he had seen cases of improvement follow which could not be attributed to anything else; but variations in the amount of sugar and absence of diacetic acid occurred in diabetics without treatment. He had given the drug a fair trial and believed it to be useless. As regarded the combined action of pancreatic extract and muscle on carbohydrates, Cohnheim's experiments were still the subject of controversy. If they were not confirmed a great deal of Dr. Crofton's paper fell to the ground. Another assumption was that there is a liability to bacterial infection. As regarded lesions in the pancreas, it depended whether one was looking for them or not. One person said that the islands of Langerhans were positively destroyed, while another said that the islands had nothing to do with diabetes. Dr. Crofton laid stress on the fact that his patients improved on the extracts, even with a full diet; yet they passed more urine with a greater percentage of sugar. A patient's statement that he felt better was worthless.—Professor B. J. COLLINGWOOD said as regards Cohnheim's experiments it was possible that they were due to bacterial invasion. There was a further action of secretin which had been neglected. If pancreatic ferments were mixed with secretin these ferments were activated by the fact that secretin had come into contact with them.—Dr. T. P. C. KIRKPATRICK mentioned the case of one patient who lost weight under secretin, but increased in weight by 5 lb. with Dr. Crofton's extract, and no longer complained of thirst or hunger. His experience of the drug in other cases justified his continuing its use.—Dr. W. A. WINTER agreed in this view.—Dr. A. R. PARSONS, Dr. G. E. NESBITT, Dr. H. M. EUSTACE, and Dr. L. STEVENS also spoke.—The PRESIDENT regarded codeine as more useful than any ferment.—Dr. CROFTON said his extract differed in no way from that of Cohnheim. He made it from pure pancreas. He did not see how this could affect the co-ferment. He did not pretend to cure but to render his patients' lives more comfortable. As regards Cohnheim's theory that it was due to micro-organisms, this could be put out of court at once, for it was proved that microbic action was entirely absent. As to the metabolism of fat, it was no hypothesis but an established fact. It was certain that if they injected into the body foreign protein they would get these co-ferments. There was no constant anatomical change in the pancreas. He did not think the improvement could be put down to mental influences, as the patients were sceptical about the drugs. He thought the treatment by codeine very useful.

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CHELSEA CLINICAL SOCIETY.—A meeting of this society was held on March 21st, Dr. T. W. Parkinson, the President, being in the chair.—Mr. J. P. Lockhart Mummery resumed the debate on the Surgical Treatment of Colitis.[1] In ulcerative colitis the mortality, he said, until quite recently had been extremely high, amounting often to 50 per cent. and sometimes more. There were two principal methods of operation: (1) giving the colon rest by artificial anus in the cæcum, or by ileo-sigmoidostomy; and (2) making an opening through which the colon could be irrigated. Right cæcal colotomy gave the best results as regarded recovery from the colitis, but the artificial anus had often to be made permanent, as it was occasionally dangerous to close it. On the other hand, ileo-sigmoidostomy was usually too severe an operation, in view of the patient's condition, and the sigmoid flexure was very likely to take on ulceration after it. The second method was far the best, and of all the operations for carrying it out appendicostomy was the most suitable. In cases where the appendix had been removed, or for other reasons was not available, a catheter could be fixed into the wall of the cæcum. The operation could be rapidly performed and with very little risk. A tube being placed in the rectum, the colon was thoroughly washed out with water or a saline solution, and the washing was repeated every five or six hours. The good effect of the operation was usually very rapid and striking, even in cases in which, from the physician's point of view, there seemed to be very little chance of recovery. Indeed, the results were so successful that Mr. Mummery considered that appendicostomy should be performed at once in all cases of ulcerative colitis if the diagnosis was certain. In the majority of cases of muco-membranous colitis the symptoms were secondary to a lesion in some other part. The disease was really not a clinical entity at all, but a collection of symptoms due to various causes. In most of these cases recovery took place without operation. The essential point was to keep the colon as empty as possible. When medical treatment failed appendicostomy might be performed, but in many cases the discovery and removal of the primary lesion rendered this unnecessary.—Dr. J. W. H. Eyre said that in the chronic forms of muco-membranous colitis a variant of the bacillus coli type was usually found. It was to these changed or evolved organisms that the continuance of infection was generally due. In acute forms the infecting agent was easily found, but in the chronic forms it was more difficult of discovery, successive dilutions having to be made to get rid of the harmless organisms. Out of 32 cases Dr. Eyre had found that 23 were due to acute or subacute ulceration. In two others the pneumococcus was found associated with other organisms. Out of 9 chronic cases he had found coliform organisms in 6, bacillus coli in 1, and bacillus pyocyaneus in 2. If vaccines were required they should always be autogenous. Stock vaccines in these cases were of very little use.

[1] See THE LANCET, April 1st, 1911, p. 822.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Queen's Road Dispensary on April 6th, Dr. F. Hinds, the President, being in the chair.—Dr. R. J. Ryle showed a specimen of Hydatidiform Degeneration of the Chorion from a woman aged 32 years, who had had three previous confinements, all normal. She was five months pregnant and had had slight irregular hæmorrhage for the last five weeks. The specimen was a perfectly fresh one, having been obtained on the morning of the day of meeting, and showed the characteristic points well.—Mr. V. T. Greenyer gave a demonstration of the dark-ground condenser, showing some spirochætæ obtained from the mouth of a member.—Dr. W. Broadbent read a paper entitled "Some Pulsations of the Neck." He divided these pulsations into two divisions—arterial and venous. In the first class, he mentioned the pulsations of the carotids in aortic regurgitation, the throbbing of the vessels in Graves's disease, carotid aneurysm, innominate aneurysm, aortic aneurysm, and the pulsation caused by the presence of cervical ribs. In the second class he referred to the pulsations of the veins of the neck, and spoke of the importance of a careful analysis of the tracings obtained from pulsating veins as a help in the diagnosis of certain heart conditions.—Mr. H. Stott read a paper on the Relation of Quack Medicine and Surgery to the Public Health and the Profession. He thought it was necessary to draw the attention of the profession to the dangers of practice by unqualified persons, and to suggest some means whereby the notice of the authorities might be called to this important matter. He thought we were behind other countries in our restrictions, and suggested we might take example from them. He drew attention to the recent Blue-book, "A Report as to the Practice of Medicine and Surgery by Unqualified Persons in the United Kingdom." He maintained that this report was remarkable for the weakness of its conclusions, and suggested that the society should pass a resolution condemning the practices complained of and forward it to the proper quarters. He gave notice of his intention to move such a resolution at the next meeting of the society.

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COLONIAL MEDICAL SERVICE.—*West African Medical Staff:* Dr. T. F. Bayfield, medical officer, Gold Coast, has resigned his appointment, and Dr. R. L. Roe, medical officer, Southern Nigeria, has retired on pension. Mr. G. J. Rutherford, provincial medical officer for Ashanti, has been selected for appointment as Assistant Principal Civil Officer of Ceylon.—*Other Colonies and Protectorates:* Dr. D. Drew, Mr. R. Drummond, and Dr. N. J. Watt have been selected for appointment as medical officers in Nyasaland.

# Reviews and Notices of Books.

*Parapaludisme et Fièvres des Pays Chauds (Parapaludism and the Fevers of Hot Countries).* By PAUL GOUZIEN, HÉBRARD, CH. GRALL, CAMAIL, THIROUX, MATHIS, LEGER, GAIDE, LEBOEUF, and THIBAULT. Paris: J. B. Baillière et Fils. 1911. Pp. 378, with 26 illustrations. Price 10 francs in paper boards; 11 francs 50 bound.

THIS work constitutes the second volume of a comprehensive treatise on exotic pathology, the first number of which, on "Paludism," has already been published, being issued under the joint editorship of Dr. Ch. Grall and Dr. A. Clarac, officers of the French Colonial Army Medical Service.

The volume comprises nine separate articles, the contributors of which, like the editors, are colonial army surgeons. The first of the articles is by Dr. Paul Gouzien, the subject being Blackwater Fever, and this occupies 115 pages, or nearly a third of the whole volume. The various aspects of blackwater fever are fully discussed, including its clinical characters, etiology, pathology, prognosis, prophylaxis, and treatment. The second article, by Dr. Hébrard, is on "The Fever with Black Vomit of Children," a disease which is stated to occur in epidemic form in certain regions of Central America. The author believes it to be quite distinct from yellow fever, and discusses the differential diagnosis between the two diseases. He, however, admits that the etiology of the malady is as yet somewhat obscure; he would prefer to call it "Febrile hæmorrhagic gastro-enteritis of children." The next article, entitled "Nervous Troubles of Paludism and Parapaludism," is by one of the joint editors, Dr. Ch. Grall; and the same writer follows with another contribution on "Climatic Fever," in which he includes various local fevers, such as the "climatic fevers of the Antilles and the shores of the Atlantic," the fevers of the Red Sea and Indian Ocean, the pseudo-dengue of Cochin China, and the fever of the ports of India. The fifth article is on "Insolation or Heat Stroke," by Dr. Camail; and in the next Surgeon-Major Thiroux, director of the bacteriological laboratory at St. Louis, Senegal, discusses "Tick Fever." Following this is a joint contribution by Dr. Gaide, Dr. C. Mathis, and Dr. M. Leger, on "The Recurrent Fever of Indo-China." The subject of "The Kala-Azars" is dealt with by Dr. Leboeuf, who, referring to the infantile kala-azar of Tunis, thinks it would be rash at present to affirm that this form of the disease is identical with that met with in India. The concluding article of this interesting series is from the pen of Dr. Thibault, who writes exhaustively on Malta, or, as it is henceforth to be termed, Mediterranean Fever. He sets out all the recent additions to our knowledge of this disease, and refers to the possibility of conveyance of the infection to man through cow's milk; the probability of infection from person to person is duly considered. He also mentions the discovery by medical men in Malta of the presence of the Micrococcus melitensis in the vaginal discharges of prostitutes, and the possibility, therefore, of the disease being contracted by sexual connexion. The clinical description of Malta fever is illustrated by a number of temperature charts. Altogether there is much that is novel and interesting, as well as instructive, in this second volume of the "Traité Pratique de Pathologie Exotique."

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*Land Problems and National Welfare.* By CHRISTOPHER TURNOR. With an Introduction by the Right Hon. Viscount MILNER, G.C.B., G.C.M.G., &c. London: John Lane. 1911. Pp. 350.

Mr. Christopher Turnor is described by Lord Milner in his appreciative introduction as "a landowner who combines with a practical knowledge of agriculture a high sense of the duties of his position and, what is perhaps more uncommon, a keen sympathy with the farmer and the labourer." It is from the point of view of the farmer and the labourer that he attacks the problem of how to revive agricultural prosperity in Great Britain, and more particularly in England, and his book is a valuable contribution to the literature of a subject which is beginning to receive some part of the attention which it deserves. Sir Horace Plunkett in the smaller volume, to which Lord Milner refers as "a brilliant essay on the Rural Life Problem in America,"[1] applied to the United States the results of experience acquired in them and in Ireland; Mr. Christopher Turnor, who has gained his actual experience in England, largely in connexion with the cultivation and improvement of his own estates, keeps continually before his readers the necessity of looking abroad for examples of rural organisation and of learning from the experience of other European countries. Read together the two books should form a valuable introduction to the study of the "Back to the Land" movement for any who may desire either to watch or to aid in promoting its development. To medical men the movement should be of interest for many reasons, as has been pointed out in these columns in allusion to Mr. Rider Haggard's excellent work. It is one which should contribute to building up the health of the nation by providing a better life for country dwellers, and by thus checking the efflux townwards of those best able to do well in the villages where they are born; and it should in time cause the return to the country of many who now increase the congestion of human beings in centres of trade and manufacture. It is a movement dependent upon the potential increase of agricultural prosperity, one factor in which increase must be the fuller and more detailed application of science to agriculture. In the development of science as applicable to the great industry upon which the food-supply of a nation depends medical men are likely to be more than mere spectators. The better life referred to must of necessity be dependent on the provision of better houses, better sanitation, and facilities for the better rearing of families in country districts, in which matters the medical profession has already duties assigned to it, and in connexion with which its duties are likely to be increased in proportion to the results obtained from their performance. Mr. Turnor writes of school teachers as "beginning to recognise, at all events in those counties where better wages prevail, that a youth with 16 or 18 shillings a week is really better off in the country, from hygienic, moral, and physical points of view, than he would be in the town, with, say, 22 shillings a week. Should he be earning even 30 shillings a week in the town, and thus securing a financial advantage, the country life would still maintain its superiority from the other points of view." The impressing of these and similar facts upon the young and upon their parents should not be a duty confined to professional instructors in county educational establishments. We need only add that small holdings, coöperation, and intensive culture are fully discussed by Mr. Turnor as means which will conduce to the restoration of prosperity to the countryside, and to enabling the nation to provide in an increased degree its own food-supply. We need not follow him into the discussion of Tariff Reform and other controversial topics not necessary to contemplation from the point of view which we have suggested as that of the medical profession. To borrow again from Lord Milner's preface, we are not concerned to endorse all the opinions of the writer, but we feel the greatest sympathy with his main object and with the spirit of his inquiry, and agree that his opinions cannot fail to be of value to all those who are earnestly seeking for the foundations of a national policy.

[1] THE LANCET, August 20th, 1910, p. 573.

*Gynæcology for Nurses and Gynæcological Nursing.* By COMYNS BERKELEY, B.A., M.B., B.C. Cantab., F.R.C.P. Lond., M.R.C.S. Eng., Obstetric Physician to the Middlesex Hospital. London: The Scientific Press. 1910. Pp. 114. Price 2*s.* 6*d.* net.

THIS little book contains the principal facts in connexion with the more common diseases peculiar to women, and the chief points to be observed in gynæcological nursing. The first part of the book deals shortly with gynæcological diseases, and the second part with the nursing appropriate in such cases. In his preface the author states that no attempt has been made to deal with any of the diseases exhaustively, and yet the detailed tables he gives of the different forms of dysmenorrhœa are certainly exhaustive, and in our opinion not necessary in a book intended for nurses, even if they were strictly accurate, which they are not. For example, we are told that in obstructive dysmenorrhœa the pain is worst when the flow is greatest. By this we presume the author means that when the amount of blood lost is considerable the pain is worst; on the contrary, however, in the most marked kind of obstructive dysmenorrhœa where the cervix is stenosed after an operation, the pain is worst when there is very little flow or no flow at all. We cannot see the bearing of these tables on the training of a nurse in the nursing of such cases. We notice that the author is in favour of teaching a nurse to pass the catheter with the patient on her back. We doubt if general opinion will endorse this view, for it is not nearly so easy a method, or so likely to lead to the avoidance of cystitis, as placing the woman on her side, and in most gynæcological cases it is possible to do so.

On the whole, and despite the fulness and value of much of the information given, the book is one which shows that the author has not a very well-defined sense of proportion.

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*The Works of Aristotle.* Translated into English under the editorship of J. A. SMITH, M.A., and W. D. ROSS, M.A. *De Partibus Animalium.* Translated by WILLIAM OGLE, M.A., M.D. Oxon., F.R.C.P. Lond. Oxford: At the Clarendon Press. 1911. Price 5*s.* net. Pp. 639*a* to 697*b*.

THIS volume is a portion of a translation of the works of Aristotle published in accordance with a clause in the will of the late Master of Balliol, Dr. Benjamin Jowett, by which certain moneys were left for promoting the study of Greek literature, while in a codicil he expressed a desire that the translation of Aristotle's works, begun by his own rendering of the Politics, should be proceeded with as speedily as possible.

The translation now before us is a revised version of one made by Dr. Ogle many years ago and published in 1882. This version was accompanied by introductory essays and was copiously annotated. The essays have now been omitted and the annotations much abridged, while the translation has been revised. The treatise in question is, in Dr. Ogle's words, "the earliest extant attempt to assign its function to each several organ of the animal body," and it is "professedly an inquiry as to how far the structure and existence of each part are due to necessity and how far to design." In Book II. Aristotle says that he has already described the parts of animals in the "Historia Animalium," and the purpose of the present work is to inquire into the *causes* that in each case have determined the composition of the respective animals. The treatise, however, is "rather one on the functions of parts than on the causes of their existence." Aristotle's method is to see if it is possible to find any use for a given structure, and if such is the case that structure is claimed as an argument for design. But although he allotted to final causes most of the organisation of animals, he allowed that necessity had some share, though a slight one.

Possibly, however, the most interesting side of the work is not the attempt to reconcile the teleological view with the materialistic view, but the accuracy of Aristotle's descriptions of what he could see; for instance, his account of the adaptation of the visible parts of birds to their varied modes of life was thought most highly of by Cuvier. There is a statement about the elephant (Book II., cap. 16) which is certainly not true generally, but which has recently received some amount of confirmation in reports from Africa. Aristotle says: "The elephant has the double character of a land animal and of one that lives in swamps." He goes on to say that the elephant is therefore given a trunk by which it may breathe while in the water, just as a diver has an instrument provided for him by which he can draw in air when under water. It is only quite recently that reports have been brought home by travellers from Central Africa of a breed of aquatic elephants. A striking instance of Aristotle's arguments for final causes is to be found in the passage (Book IV., 10, 687), where he argues that man owes his hands to his superior intelligence—a view with which Galen agreed. For arguments on the other side the inquiring reader may refer to Lucretius, De Rerum Natura, Book IV., 823, *et seq.*

Dr. Ogle and the editors of the Jowett translations are to be congratulated upon this volume of the series. Few modern biologists have enough Greek to read Aristotle in the original, and the treatise of which the translation is before us is written in a somewhat crabbed style. In the English version modern workers will find the observations of their great predecessor set forth in clear language, and if they turn to the original edition of 1882, they will find also a most illuminating introduction.

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*The Brain and the Voice in Speech and Song.* By F. W. MOTT, F.R.S., M.D. Lond., F.R.C.P. Lond. London and New York: Harper Brothers. 1910. Pp. 112. Price 2*s.* 6*d.*

MANY books have been written on the physiology of voice. Not a few have been written in a semi-popular style to suit the requirements of teachers of singing, and some are of little real value owing to deficiency of knowledge or because facts are somewhat distorted to suit the theories of the authors as to voice-production. This little book is free from all these errors. It is written by a competent physiologist who is thoroughly acquainted with the physics and the physiology of vocal sounds, and, as we should expect, the descriptions are both graphic and accurate, while the illustrations are clear and convincing. The value of the book, moreover, is much enhanced by having been written by a neurologist who recognises the remarkable interplay between the organ of voice and the brain, a part of the subject usually omitted from books on the voice. Voice is due not merely to the action of the larynx, wonderful as that is, but to the neuro-muscular mechanism of breathing, and to the activities of the brain. To give vocal expression to thought, either in the speech of the orator or in the cadences of the prima donna, implies the harmonious action of a very complicated mechanism. This accounts for the comparative rarity of individuals with the highest gifts of this kind. Ignorance of much explained in Dr. Mott's little book leads to the destruction of not a few fine voices, while a knowledge of the subject, in its wide aspect, must lie at the basis of all systems of successful voice-training.

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*The Voice, an Introduction to Practical Phonology.* By W. A. AIKIN, M.D. Brux. With diagrams. London: Longmans, Green, and Co. 1910. Pp. 150. Price 7*s.* 6*d.* net.

SO much fanciful and imaginative nonsense has been, and still is, written on the voice and its training, that the wearied reader at last finds himself repelled by any book which bears the title of "The Voice." On the one hand, we

have singing-masters creating novel physiologies to suit the method of training they wish to exploit. On the other hand, we have physiologists concocting strange devices in the way of voice cultivation to suit their scientific theories. It is only within the last few years that one or two books have appeared the subject-matter of which shows that their authors have approached the natural difficulties and intricacies of the question in the true spirit of scientific humility. Dr. Aikin's book is a second edition of a previous publication, and is, in some respects, adapted for the teacher and student in voice-training, rather than for the practical physician, as it largely consists of detailed instructions on exercising and developing the voice. But everyone will be interested in the physiological sections, especially in those dealing with the resonating chambers and their influence upon the formation of the vowel-sounds, for the elucidation of which we are indebted to Dr. Aikin more than to anyone. With his impeachment of composers, that they write their songs in a pitch dangerously high for singers of normal range, we are entirely in sympathy, and our zeal for reform is heightened by an examination of the "song-diagrams" he has constructed to drive home his facts.

## LIBRARY TABLE.

*Transactions of the Ophthalmological Society of the United Kingdom.* 1911. Vol. XXXI. Fasc. 1. London: Messrs. J. and A. Churchill. Pp. 46. Price 4*s.* net.—The first fasciculus of the new volume of the Transactions of the Ophthalmological Society is rather above the average in interest. Dr. C. Markus reports a case of bilateral peripheral and central bulging of the cornea, and Mr. G. Coats gives the anatomical examination of a case of marginal keratectasia previously shown by Mr. J. Herbert Fisher. These cases add to the scanty records of a condition identical with, or nearly allied to, that described first by Schmidt-Rumpler as "furrow keratitis," and later by Fuchs as "marginal atrophy of the cornea." Colloid excrescences of the membrane of Bruch have been regarded as the cause of various ophthalmoscopic appearances such as that commonly known as "Tay's choroiditis." It is rare that opportunity arises for proving the accuracy of the conjecture. Mr. Coats publishes an ophthalmoscopic picture of a peculiar condition of the fundus of the right eye and the anatomical examination of the left eye of the same patient, showing almost conclusively that the pathological features were caused by such colloid excrescences. He also adds to his many contributions on congenital malformations of the eye the clinical report of a case of atypical coloboma of the iris and lens with persistent mesoblastic strand. Cases of melanotic sarcoma at the limbus and solitary tubercles of the choroid are reported by Mr. W. H. H. Jessop; also one of endothelioma of the lacrymal gland by Mr. C. S. Blair; and one of new growth involving the iris, by Mr. F. A. Juler. Mr. N. Bishop Harman has devised twin scissors for performing Herbert's sclerotomy,[1] and reports a case in which they were employed. Mr. R. Foster Moore records cases of loss of sight following loss of blood. Mr. J. H. Tomlinson describes a simple projecting polariscope for use in testing colour perception.

*Fever Nursing.* By J. C. WILSON, A.M., M.D., Visiting Physician to the Hospital of the Jefferson Medical College, Philadelphia, &c. Illustrated with 29 charts and photographs. Sixth edition. London and Philadelphia: J. B. Lippincott Company. 1910. Pp. 259. Price 5*s.*—This little book, compiled in the first instance for the use of professional and other nurses, as well as for a text-book for nurses in training, should prove very useful for those who may be called upon to minister to fever cases. The work embodies the substance of a course of lectures on fever nursing delivered before the classes of nurses at the Philadelphia Hospital by the author. He has treated his subject in plain wording and from the standpoint of the physician, and lays down in a clear and emphatic way not only *how* fever patients should be cared for, but also *why* they must be cared for in particular ways. Special mention should be made of the sections dealing with the nursing of scarlet fever and small-pox, the illustrations concerning which are particularly well reproduced. The book is well printed and there is a good index.

*The Annual Reports of the Royal Dental Hospital of London for 1910.* London: J. Bale, Sons, and Danielsson. Price 5*s.*—In this volume the editors have brought together a useful collection of papers based on the clinical work of the hospital and the annual series of post-graduate lectures. The papers by Dr. Dudley Buxton on Cases and Methods of giving Anæsthetics in Dental Surgery, and by Dr. R. J. Probyn-Williams on Anæsthesia for Prolonged Dental Operations, are well worthy of the attention of those interested in this branch of medical practice. In a short paper on Fracture of the Mandible Mr. W. H. Dolamore advocates the use of a splint formed of a metal cap covering the crowns of the teeth, the splint being fixed in place by means of oxy-phosphate cement. Mr. F. Coleman contributes an article on Hæmophilia, and Mr. J. F. Colyer gives an account of the treatment of extensive caries in children by extraction of the teeth. The reports are a valuable addition to dental literature, and the hospital authorities are to be congratulated on their publication.

*Hæmatological Chart.* By GORDON R. WARD, M.R.C.S.Eng., L.R.C.P. Lond., Pathologist to the General Hospital, Tunbridge Wells. London: Baillière, Tindall, and Cox. Fifty charts on a tablet. Price 2*s.* 6*d.* net.—The leaves of this foolscap tablet contain spaces for the various data necessary in recording a blood examination and a schematic representation of the corpuscles. The reverse side of each leaf can be used for clinical notes. Such charts are of value both as a record and in the case of those who only do such work occasionally as a reminder to prevent overlooking points of importance.

*Practical Nursing for Male Nurses in the R.A.M.C. and Other Forces.* By Major E. M. HASSARD, R.A.M.C., and A. R. HASSARD. Illustrated. London: Henry Frowde; Oxford University Press. 1910. Pp. viii.–339. Price 3*s.* 6*d.* net.—The title of this handbook explains its contents. It is well and thoughtfully written, and should command a sale in the public services, as no official text-book of any real practical value concerning the scientific aspect of nursing exists. Skilled and tender nursing is a boon which all are ready to recognise, and nowhere are its benefits better appreciated than in the army. The nursing at our military stations leaves little to be desired where Queen Alexandra's Military Nursing Service is employed, but there are many small stations both at home and abroad where the nursing of military hospitals has of necessity to be left entirely in the hands of male nurses. These men are, as a class, generally sympathetic and reliable. They belong to the Nursing Section of the Royal Army Medical Corps, and receive their training under the direct supervision of the matrons of the large military hospitals for nursing duties, and they receive two years' instruction in elementary anatomy, physiology, and first aid from officers of the Royal Army Medical Corps at the stations in which they happen to be serving. Extra pay and promotion are largely dependent on the degree of attainment that the candidates show at examinations. Unfortunately, owing to service exigencies the *personnel* of the Royal Army Medical

[1] THE LANCET, March 4th, 1911, p. 593.

Corps appear to be kept for ever "on the move," and thus the men of the service are not left long enough either at one particular form of nursing or even in one station to benefit as much as they might otherwise do from lecturers or experience. Change of class and change of lecturer weary both sides, and it is in this respect that Major Hassard's handbook appears to fill a gap that should be very beneficial to the male nurses of the R.A.M.C. and other Forces, as by its means a continuity of teaching can be assured. It might well become a standard text-book for the services.

*Pam the Fiddler: a Tale of the Rising Brooks.* By HALLIWELL SUTCLIFFE. London: T. Werner Laurie. Pp. 379. Price 6*s.*—This is an interesting story of the Roman Catholic rising in the North of England in the reign of Queen Elizabeth. It is written distinctly from a Roman Catholic point of view, but there is no rancour in it. It portrays the honest forthrightness of the single-minded Richard Norton and his nine sons, which was brought to nought by the vacillation and time-serving of Northumberland and Westmorland; the craftiness of Cecil; and the alternations of good and bad in the character of "good Queen Bess." Patience, the daughter of "Pam the Fiddler," is the heroine—a poor girl driven "daft" in childhood by the horrors of persecution she had seen—who emerges from her mental clouding under the stress of the dangers of her lover, Christopher Norton. The love of Patience and Christopher is an idyll, and the story ends happily for the lovers. Two passages especially emphasise a truth in danger of being forgotten in these days of "looking forward." Speaking of Christopher's mental anguish the author says: "In such an hour it is the past, and not some hoped for future, that reaches out steady, helpful hands." And again: "For at times a man finds strength to go forward by leaning on the many yesterdays that have gone to the training of his soul."

## JOURNALS AND MAGAZINES.

*Journal of Pathology and Bacteriology.* (Official Organ of the Pathological Society of Great Britain and Ireland.) Vol. XV., No. 2. Published from the Department of Pathology, Cambridge University. Price 7*s.* 6*d.* Yearly subscription £1 1*s.*—In this number Dr. R. Jardine and Dr. J. H. Teacher (Glasgow) record "Two Cases of Symmetrical Necrosis of the Cortex of the Kidneys associated with Puerperal Eclampsia and Suppression of Urine." This eclampsia came on in the seventh and eighth months of pregnancy. On post-mortem examination the greater part of the cortex of both kidneys was found necrosed. Dense fibrinous thrombi, probably started by local arterial spasm, were found in the arteries supplying the necrotic areas, and the authors consider that these were undoubtedly the cause of necrosis. Miss M. P. Fitzgerald describes "The Induction of Sporulation in the Bacilli belonging to the Aerogenes Capsulatus Group." The author, working in the Rockefeller Institute, New York, finds that sporulation may be induced in these bacilli growing in peptone bouillon by the addition of arabinose, raffinose, inulin, dulcite, isodulcite, mannite, and amygdalin, the last two being especially favourable. No sporulation was observed with glucose, cane sugar, lactose, or maltose, which are broken up by the bacilli, with the production of acid. Acid is in general inhibitory, and alkali favourable, to spore formation, an alkalinity of 1/50th to 1/100th normal strength giving the best results. Dr. A. Bruce and Dr. J. W. Dawson (Edinburgh), in a paper on the Relations of the Lymphatics of the Spinal Cord, note that it is commonly believed that around the vessels which penetrate the substance of the spinal cord are two independent lymph spaces: (*a*) a continuation of the subarachnoid space in the loose tissue of the adventitia in the adventitial space; and (*b*) a space lying outside this between the adventitia and the glial membrana limitans perivascularis, known as the perivascular space of His, and continuous on the one hand with the epispinal space of His between the pia and the cord, and on the other with the pericellular space of Obersteiner surrounding the ganglion cells. In properly fixed tissues the relations are best shown by the natural injection of the lymph spaces and the presence of compound granular cells which are found in subacute degenerations of the cord; in such tissues no perivascular or epispinal space is seen, but the lymph spaces of the adventitia and the pia are crowded with phagocytic cells full of the remains of degenerated myelin. The only real lymph channels are the adventitial spaces in which, for the most part, the lymph current runs from within outwards, though an inward current also occurs, and may carry micro-organisms and toxins into the cord. Professor J. Lorrain Smith and Dr. W. Mair (Manchester) contribute a paper entitled "Further Observations on the Bichromate Hæmatoxylin Method of Staining Lipoids" and point out that they suggested in a former paper that mixtures of cholesterin and fatty acids were the chief element in tissues staining with Weigert's myelin method, the essential substance being the cholesterin. They now find that a cerebroside from brain stains readily; this substance is relatively insoluble in the ordinary fat solvents and is present, in traces only, in the brain of the new-born infant. This explains why nerve tissue after treatment with alcohol and ether still shows faint Weigert staining, and why the medullary sheath in young subjects is much more difficult to stain than in adults. Dr. C. H. Browning and Dr. I. McKenzie (Glasgow) give the results of investigation on the Wassermann Reaction in Rabbits Infected with the Trypanosomes of Nagana, and the Effect of Treatment with Arsenophenylglycin. They find that normal rabbits may react positively to the Wassermann test or the above treatment, and that animals infected with trypanosomes may not. The reaction may persist after cure with arsenophenylglycin—a very effective drug, and may remain negative after the disease has been prolonged by the use of small doses. Heated serum from trypanosome rabbits may give a negative reaction. Dr. R. A. Chisholm (Guy's Hospital, London), as the result of a long series of observations on the Respiratory Exchange of Mice bearing Transplanted Carcinoma, concludes that in the activity of their respiratory exchange and in the respiratory quotient mice bearing tumours do not differ from normal mice. The removal of the tumour produces no alteration in the respiratory exchange. Klossiella muris was found in the kidneys of several animals. Dr. W. J. Mallory, in his Observations on Uric Acid Excretion in Gout and Rheumatoid Arthritis, gives an elaborate research into the excretion of uric acid by 19 patients while on a purin-free diet, and after administration of nucleinic acid and hypoxanthin; it was found that 10 did not differ from the normal. Nine cases, however, showed a much prolonged increase of uric acid excretion after the administration of purin-containing substances, and following the administration attacks of subacute arthritis often occurred; in these points the cases resembled gout. They excreted, however, a much larger proportion of the exogenous purin nitrogen administered as uric acid than did the cases of gout examined by the author and others. Dr. H. D. Rolleston and Dr. R. S. Trevor (St George's Hospital, London) in "Primary Sarcoma arising in a Cirrhotic Liver" record the case of a male, aged 46, in whom there was a large tumour in a cirrhotic liver, with secondary growths in the same organ and in the peritoneum. The primary tumour showed a very vascular growth with polymorphic cells arranged in alveoli, the secondary nodules the structure of a round-celled

sarcoma. The tumour is regarded as an hæmangeio-endothelioma.

*Jahreskurse für Ärztliche Fortbildung. (Annual Post-graduate Course.)* Munich: Lehmann. Price M. 16 per annum; M. 2 per mensam.—The February number is devoted to a consideration of the diseases of the organs of circulation and respiration. In the former section Professor Ortner confines himself chiefly to a consideration of cardiac pain and arterio-sclerosis. Heart pain may be *spasmodic* (pericarditis, myocarditis, acute dilatation, neurosis, &c.), *constant* (pressure on the heart, aneurysm, mediastinal tumours), or *intermittent and anginoid*. Some space is devoted to the discussion of the diagnosis of the last variety from the diseases which simulate it. In angina pectoris the localisation of the pain in the upper part of the sternum shooting towards the left shoulder is regarded as very important. Certain forms of exophthalmic goitre as well as paroxysmal tachycardia are readily mistaken for cardiac angina. Amongst other diseases which cause pain of a similar character are pericarditis, infective aortitis, aneurysm, heart rupture, poisoning by tobacco, tea, coffee, or lead, tabes, hysteria, pancreatitis, dilatation of the stomach or œsophagus, and membranous colitis. Each of these conditions receives due notice. Arterio-sclerosis is considered from the point of view of treatment. The indications for iodide medication are the definite presence of luetic infection as tested by Wassermann's reaction and the absence of the following contra-indications—viz., a high grade of anæmia or cachexia, granular kidneys, goitre, and any form of hyperthyroidism. Potassium iodide is used as the routine drug, but in certain cases the organic iodides are indicated. The treatment should be continued for two to three years, with an interval of about one week in each month. It is advised to use "vasotonin," a compound of urethane, in the reduction of the blood pressure. In addition to the ordinary remedies for angina—e.g., nitrites and theobromine—morphia in quite large doses is recommended as not only a means of relief but also one of permanent benefit. The varieties and indications for the different kinds of hydrotherapeutic methods for the treatment of arterio-sclerosis are discussed. Professor Oscar Bruns describes the different forms of emphysema, and deals with the mechanism of their production. Temporary dilatation of the lung tissues is caused by any hard physical exercise. A permanent pulmonary dilatation which has no symptoms is found in glass-blowers and those who use wind instruments. The reason that pathological emphysema produces its usual symptoms is regarded as being due to its almost invariable association with bronchitis. The elastic tissue becomes permanently damaged, the circulation hindered, and the chest wall fixed as a rigid box. In treating emphysema the first point to be considered is the bronchitis. Careful and long-continued respiratory exercises are indicated in this condition. The system of breathing the air in a negative pressure cabinet is described and its effect on the circulation pointed out. Lastly, the cases in which Freund's operation of division of the ossified costal cartilages is indicated are considered.

*The Bristol Medico-Chirurgical Journal.*—The seventh annual Long Fox Lecture, delivered by Dr. J. Michell Clarke and published in the March number of this magazine, deals with the subject of Cerebro-spinal Syphilis. The author notes that in cerebral vascular affections the outlook is not favourable, some mental impairment often remaining permanent. He advocates rest in bed and mercurial inunction by way of treatment. Mr. F. Richardson Cross records some very interesting cases of defect in the visual field, and Dr. Carey F. Coombs writes on the Nature and Treatment of Chorea, which he regards as a rheumatic affection, involving all the different functions of the central nervous system. Treatment should be by rest and salicylates—large doses of arsenic are not advisable, but chloretone is occasionally useful and hot packs may be valuable in cases exhibiting violent movements.

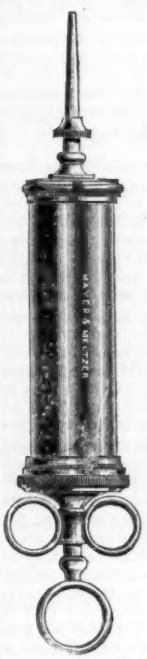
*The Medical Chronicle.*—In the March issue of this magazine is published an address by Mr. Edred M. Corner on the Life-History, Function, and Inflammation of the Appendix, in which he maintains that this organ—which represents the remains of the large appendix of ruminants—has taken on new functions, analogous to those of the tonsil, in its involutional progress, but nevertheless advocates its removal in all cases at the first opportunity. Dr. W. B. Warrington writes on Traumatic Myelitis, a condition apparently due to minute but recognisable disturbances in the living cells, which have to be distinguished from purely functional disease.

*Edinburgh Medical Journal.*—In the April number Dr. Norman Walker writes on the Treatment of Lupus Carcinoma, in which early operation is imperative, either by scraping, by $CO_2$ snow, or by such caustics as chromic acid or arsenious acid. Dr. H. G. Langwill discusses the medical examination of employees, with especial reference to the Mercantile Marine, and Dr. James Dundas writes approvingly of the prospect of a national medical service in the coming Socialistic State. A discussion on Duodenal Ulcer at the Edinburgh Medico-Chirurgical Society, here reported, exhibits a general recognition of the value of Mr. B. G. A. Moynihan's work on this subject, tempered by a feeling that many cases occur in which diagnosis of the presence or absence of this lesion is still impossible.

# New Inventions.

## AN IMPROVED SYRINGE.

IN the ordinary metal syringe, such as is used for washing out the bladder, the piston after a time becomes worn and no longer accurately fits the barrel of the syringe; the syringe is therefore no longer air-tight and has to be discarded. To overcome this, I have had a syringe made with a piston on the principle of that used in the motor-car. The piston fits the barrel of the syringe only loosely, and is made air-tight by the addition of three split metal rings, which are sprung on the piston and fit into three corresponding grooves. When these rings become worn they can be replaced at a small cost (3*s.* 6*d.*), and the syringe is then once more air-tight. I have used a syringe of this kind for washing out the bladder in cases of cystoscopy during the last 12 months and have found it very satisfactory.

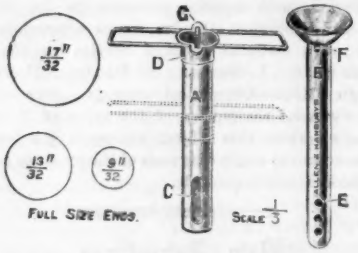


Messrs. Mayer and Meltzer of Great Portland-street, London, W., have kindly made the syringe for me and are now placing it on the market in three sizes—2, 3, and 4 oz. They would be suitable also for washing out the external meatus of the ear, as they are strongly made and give a powerful stream. The illustrations show the syringe and the piston with its piston rings.

Sheffield. GRAHAM SIMPSON, F.R.C.S. Eng.

## AN IMPROVED DRAINAGE-TUBE FOR SUPRAPUBIC CYSTOTOMY, LIVER ABSCESS, AND ABDOMINAL CYSTS.

CERTAIN recent cases of prostatectomy and the drainage of cystic cavities have suggested to me that an improvement might be effected in the pattern of drainage-tube commonly in use, more especially for prostatectomy. The points in which this tube appears to me to be defective are the following:—1. There is no arrangement by which the length of the tube can be accommodated to the depth of the cavity. Thus, in small contracted bladders its deep end frequently rests upon the trigone or upon the wound made in removal of the prostate; it thus gives rise to continued oozing, discomfort, and delayed healing, while the upper end tends to sink into the dressings and allows of their becoming soaked, if for any reason the Sprengel's pump becomes blocked or ceases momentarily to act. 2. The holes in the deep end are, as a rule, made much too small, and so are easily blocked by muco-pus or clot. 3. The deep end of the tube being closed, it is impossible to wash out the bladder without removing the tube, which if removed early in the case is often difficult to replace, especially in patients who are markedly obese. The tube here illustrated has been




made for me by Messrs. Allen and Hanburys of Wigmore-street, London, W., and will, I believe, be found a great improvement on the usual pattern. It consists of an outer tube (A) and an inner (B). The former is open at its deep end, and this end has a vertical gap (C) on either side for the last inch of its length. The upper end is provided with a flat flange carrying two lugs by which it can be gripped by the finger and thumb, and in each of these lugs is a slot (G). Round the outer tube is fitted an automatic spring collar (D), carrying wire arms on either side; these arms rest on the abdominal wall where they can be fixed by a narrow piece of strapping. The outer tube can thus be drawn out or pushed in through the collar, which grips it sufficiently tightly to permit of any desired length of tube being used in the bladder.

The inner tube (B), which fits the outer loosely, has three holes (E) on either side of its deep end, which correspond when in position to the vertical gaps (C) in the outer tube, already mentioned; accuracy of position is insured by the presence of two small studs (F) which fit into the slots (G) in the flange of the outer tube. The inner tube is provided with the usual wine-filler mouth, and its deep extremity is closed by a smoothly rounded end. It is thus possible to remove the inner tube without disturbing the wound, and through the outer to wash out shreds, clots, and muco-pus, which frequently remain in the bladder for some time when the ordinary tube is used. The apparatus is made in three sizes, so as to allow of the narrowing down of the wound to a comparatively small diameter before the application of an Irving's drain, which, although excellent in its way, yet causes considerable maceration of the skin if used throughout the case. In association with Sprengel's pump, I believe and hope that these tubes will prove of much assistance to surgeons and conduce to the greater comfort of patients. They may also be utilised for draining liver abscesses; for this purpose the tube of the largest diameter may be made of any desired length and a trocar of suitable size may be fitted to it. The two being driven into the abscess cavity, the drainage-tube is left *in situ*, and will be found to overcome the common difficulty of kinking where rubber tube is used. In cases of pancreatic and hydatid cysts they are also useful; in the former case they may be employed through a purse-string suture, the cyst wall being then attached to the abdominal wall, while in the latter they may be introduced after evacuation of the contents and removal of the membrane.

LAWRIE MCGAVIN, F.R.C.S. Eng.
Mansfield-street, W.

## BRITISH MEDICAL BENEVOLENT FUND.

AT the March meeting of the committee 24 cases were considered and grants amounting to £182 made to 20 of the applicants. Appended is an abstract of the cases relieved:—

Daughter, aged 83, of late M.R.C.S. Has had an income of £13, supplemented by a friend, recently deceased. Voted £5 and recommended to apply for an old age pension.

Daughter, aged 53, of late M.R.C.S. Has a few shillings a week derived from a mortgage and used to let a cottage during the summer. Quite incapacitated by serious illness for the latter half of last year and now dependent for shelter on friends. Voted £10.

M.R.C.S., aged 73. Since an apoplectic fit three years ago has been dependent on children, who can only give slight help. Relieved three times, £24. Voted £12.

Widow, aged 62, of L.R.C.P., L.R.C.S. Irel. Has supported herself since husband's death in 1896 by taking situations as cook, &c., but is becoming unfitted for her work and asks for a little assistance to start canvassing for a pension given by another charity. Voted £5.

Daughter, aged 43, of a late army surgeon. Used to be a nurse, but had to undergo a serious abdominal operation, and now endeavours to maintain herself by taking lodgers. Voted £10.

Widow, aged 70, of M.R.C.S. Has just been elected to a pension from the United Kingdom Beneficent Association, but requires further help in consequence of her age and its infirmities. Voted £5 and recommended to apply for an old age pension.

M.R.C.S., aged 74. Used to have a good practice in London suburb, but had to go abroad on account of ill-health, and since his return has been unable to establish himself again. Now dependent on an old age pension of 5s. a week and 2s. a week given by a brother. Voted £12.

Widow, aged 40, of M.D. R.U.I. Since husband's death 12 years ago has received a home in exchange for her services as housekeeper and now proposes to start a registry office. Relieved 12 times, £141. Voted £5.

Daughter, aged 58, of late L.R.C.P. Edin. Some years ago endeavoured to start a small business but lost her savings and is now dependent on a weekly allowance from a friend and small earnings from needlework. Relieved six times, £52. Voted £6.

Widow, aged 78, of M.D., L.S.A. Has rooms and a small weekly allowance at an almshouse, but requires help to provide attendance necessitated by an attack of apoplexy. Children unable to assist her. Relieved once, £12. Voted £5.

Daughter, aged 52, of late M.R.C.S. No income; endeavours to support herself by taking boarders and receives a little help towards the rent from a friend. Relieved three times, £42. Voted £10.

Widow, aged 53, of L.R.C.P., L.R.C.S. Edin. No income; no children; health so indifferent that only very light work is possible. Relieved seven times, £70. Voted £12.

Daughter, aged 55, of late M.R.C.S. Is a chronic invalid and unable to undertake any regular or continuous work. Receives a small weekly allowance from a sister. Relieved 13 times, £149. Voted £12.

Widow, aged 66, of M.D., C.M. Glasg. Has been a confirmed invalid for many years and is practically dependent on this fund and a ladies' working guild. Relieved 11 times, £124. Voted £12.

L.R.C.P., L.R.C.S. Edin. Has been incapacitated for the last three years and dependent on the help given by his sons and by two unmarried sisters who keep a small school. Relieved once, £10. Voted £10.

Widow, aged 87, of M.R.C.S., L.S.A. Has a pension of £25 a year from the United Kingdom Beneficent Association, but is bedridden and requires help for quite unavoidable expenses. Children unable to help. Relieved twice, £17. Voted £12.

Daughter, aged 60, of late M.R.C.S. Has been subject to epilepsy since childhood, and being quite unable to support herself is dependent on a few shillings a week subscribed by friends and on a brother who can ill afford assistance. Relieved three times, £32. Voted £10.

Daughter, aged 68, of late M.R.C.S. Was provided for at father's death, but lost part of her capital by the failure of a bank and the remainder in the endeavour to establish a boarding-house. Relieved once, £12. Voted £12.

Widow, aged 53, of L.R.C.P. Edin. No income; lives rent free by acting as caretaker to a surgery and receives slight help from two children; health indifferent. Relieved five times, £52. Voted £12.

L.R.C.P., L.R.C.S. Edin., aged 52. Used to have a fair practice in London, but lost it through ill-health, and is now quite without means. Hopes to shortly obtain a ship's surgeoncy. Relieved twice, £10. Voted £5.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

SEVENTH CONGRESS OF THE GERMAN ROENTGEN SOCIETY.—This congress will take place on Sunday, April 23rd next, in Berlin, Langenbeckhaus, Ziegelstrasse, 10/11, opening at 9 A.M. There will, however, be certain demonstrations on the Saturday evening at 8 o'clock, when projections which require the darkening of the hall may be shown so as not to delay the proceedings on the following day. The programme contains the names of 45 gentlemen who have entered their names to give a total of 67 papers or demonstrations. Further particulars and cards of membership may be obtained on application to Herr Melzer, Berlin, N. 24, Ziegelstrasse 10/11. The subscription amounts to M.10.15. Professor Dr. B. Walter of the Physikalisches Staatslaboratorium, Hamburg, is the President for 1911.

# THE LANCET.

*LONDON: SATURDAY, APRIL 15, 1911.*


## The Oliver-Sharpey Lectures on Heart Failure.

THE Oliver-Sharpey lectures were instituted with the object of promoting physiological research by observation and experiment, and of encouraging the application of physiological knowledge of man to the prevention and cure of disease and the prolongation of life. Dr. JAMES MACKENZIE, in delivering the lectures this year, has fully carried out these principles; he has by close and persistent observation accomplished most important results, both as regards the physiological and the morbid action of the heart. It is a notable and highly praiseworthy fact that these investigations were carried out in the midst of a large general practice. The general practitioner has opportunities of watching certain phases of disease which the hospital physician has not, and, though many practitioners are fully aware of this, such is the stress of their lives that few find time to sift and collate their experiences, which remain too often unrecorded or buried in memorandum books. The trivial ailments by which the beginnings of disease are often made manifest are not seen by the consultant, who, as a rule, is not called in until disease is well established. The subtle changes that go on as disease advances are often missed, and hence the links between the various stages have to be based on inference alone. Dr. MACKENZIE chose his subject with the two-fold object of demonstrating, firstly, the need for observation in cardiac disease of that close and continuous sort which the general practitioner can undertake, and, secondly, the results that have been obtained by such a line of observation in his own experience. He therefore fulfilled the duties of an Oliver-Sharpey lecturer very accurately.

The term heart failure is one frequently employed, although the exact manner in which the condition is brought about remains open to question. Dr. MACKENZIE maintains that too much emphasis has been laid on the morbid significance of cardiac irregularities and murmurs, and that the fact has not been properly appreciated that such phenomena may present themselves, and yet the individuals in which they exist may sometimes live long and strenuous lives without presenting any indications of want of heart power. That such may be the case has for many years been pointed out by some of our greatest clinical authorities, and this, as Professor R. SAUNDBY points out in another column of THE LANCET, does not seem to be fully appreciated by Dr. MACKENZIE. The case related by the late Sir ANDREW CLARK of an official at one of the large London hospitals who lived for more than 20 years in the enjoyment of good health and a retiring pension in spite of the presence of a mitral murmur has been often mentioned, and conveys the same lesson as Sir WILLIAM GULL'S witticism quoted by Professor SAUNDBY. It has also been generally recognised that an irregularity of the cardiac rhythm does not necessarily mean serious disease. Nevertheless, if either irregularity of rhythm or abnormality of sound is present, the practitioner must do his utmost to arrive at the significance of what cannot fail to be an anxious symptom. Dr. MACKENZIE'S remarks will, therefore, be read with general interest, and the conclusions at which he has arrived form, we think, a step forward in the history of the pathogeny of diseases of the heart. The various forms of irregularities previously described by him are now well recognised. The researches which have been made since he first published his results, however, have necessitated some variations in his views, especially in regard to the investigations of Dr. T. LEWIS with the electro-cardiograph. "Nodal irregularity" has now been shown to be brought about by fibrillation of the auricles; Dr. MACKENZIE describes in plain language in his first lecture[1] precisely what is indicated by this term, and, as he properly points out, the recognition of this condition and of the phenomena accompanying its onset presents the subject of the most common form of heart failure in an entirely new light, and affords grounds on which a sound prognosis and a natural therapy can be based in many obscure cases. Dr. MACKENZIE lays stress on the fact that heart failure means an inability of the heart muscle to maintain the circulation—"only this and nothing more." But the methods of its production may be various, and from Dr. MACKENZIE'S view it can be argued that the danger of mitral disease consists, not in the fact that a valve lesion exists, but that the heart muscle may be unable to perform its duty under certain conditions probably present. The disturbances of the circulatory mechanism may be of a very varied character, and may arise from a great number of causes, but it is from the standpoint of possible obstacles to the heart muscle and its work that the bearing of all seeming abnormalities has to be considered. Thus Dr. MACKENZIE. It has to be determined, therefore, which of the physical signs and symptoms, commonly supposed to be indications of weakness or failure of the heart power, are reliable evidences of a substandard condition. Such considerations are of the utmost importance, not only in an endeavour to arrive at a diagnosis and prognosis at the bedside or in the consulting-room, but also in examinations for life assurance or of candidates for the services or other appointments. Dr. MACKENZIE is of opinion that the methods usually employed to estimate the heart's efficiency are inadequate. The mere quickening of the pulse on exertion he considers to indicate little or nothing for certain, and the use of elaborate blood pressure instruments he thinks may betray the physician into error. On the other hand, he says, the due perception and recognition of the symptoms which arise in the early stages of heart failure, and of the modification of these symptoms as exhaustion of the "work force" of the heart proceeds, will furnish evidence of such value that not only can the degree of heart failure be estimated

[1] THE LANCET, April 8th, 1911, p. 922.

but also the significance of any objective sign which may be found.

In the course of his lectures he describes in detail the methods of examination which should be carried out and concludes that the only real test of the integrity of the heart muscle is its power to respond to effort, holding that the amount of effort that can be undertaken without distress affords a basis for estimating the degree of impairment. Passing on to those conditions in which indications of heart failure actually exist, his remarks on treatment are based on the contention that failure arises because the "period of work" of the heart is so great that the "period of rest" cannot restore a sufficient amount of work force, the essential principle of treatment becoming then self-evident—namely, rest. Rest may be secured for the heart by actual physical rest assisted by those drugs which procure the effects of rest by causing the slowing of the heart's rate; such drugs are, of course, to be found in the digitalis group. These measures have been generally accepted and practised, and so far present no advance, but the further contention that when there is fibrillation of the auricles certain methods of treatment which are usually adopted are of but little value may be received with surprise and perhaps with some criticism. Dr. MACKENZIE has no belief in the value of strychnia as a heart stimulant, and he has no trust in the value of the mechanical forms of treatment. Doubtless the benefits of baths and exercises have been exaggerated by some observers who see physical phenomena when only mental are present. Many nervous phenomena, especially apprehensiveness and irritability, are frequent symptoms of heart failure, and the psychic influence which certain methods of treatment exert must be counted a valuable aid in the therapeutics of early cardiac failure in some individuals. There is a long step, however, between remembering the probable mental influence of cardiac exercises and denying that in any case can any benefit other than mental come from such therapeutics. We do not understand Dr. MACKENZIE to have gone quite as far as this, but he has certainly thrown down a challenge to a large school of practitioners. It is because of their practical nature that the contribution to the study of cardiac disease to be found in the Oliver-Sharpey lectures will be carefully studied and widely appreciated. The application of the teachings will be followed in the main by beneficial results.

## The Behaviour of Certain Infectious Diseases at Home and Abroad.

IN a leading article in THE LANCET of Jan. 28th, p. 247, we published a general review of the last annual report made to the Local Government Board by Dr. A. NEWSHOLME, chief medical officer to the Board, and we propose now to direct attention in more detailed fashion to certain specific questions of which the report treats. Dr. NEWSHOLME, in discussing the subject of sanitary administration and the frequency with which the medical inspectors discover such administration to be not only defective but at times almost non-existent, observes that the responsibility for failure must be shared between the sanitary authority, its officers, and the inhabitants of the district; and he aptly remarks that in a restricted sense the inhabitants of a district secure such sanitary conditions as they deserve, since the members of the district councils are elected by them. As he adds, however, the responsibility of the people is less direct than that of the council and its officers, upon whom rests the chief responsibility for the insanitation which still prevails in certain districts. Dr. NEWSHOLME evidently considers, and those who have had experience of these matters will agree with him, that at times the local administrative area is too small to allow of the impartial enforcement of sanitary requirements, indeed a condition of affairs similar to that which he describes may be found even in districts with populations of from 9000 to 18,000. With respect to the share of responsibility which may be regarded as devolving upon the central authority, Dr. NEWSHOLME observes that for various reasons central compulsion of defaulting local authorities is not generally successful, and in his view "the only provision—apart from an educated and responsible public opinion—likely to successfully replace compulsion, would be the institution of grants in aid of definite execution of sanitary administration, the grants depending on the efficiency of the work actually accomplished." This proposal may appear to open up some very big issues, but it must be remembered that the principle has for many years been in operation in connexion with grants to public vaccinators, and, in a modified sense, in those numerous instances where local authorities seek to borrow money from the public funds on the security of the local rates for the carrying out of public works. Here with the aid of this powerful financial lever the Local Government Board after public inquiry is able to bring about far greater efficiency than would be the case in the absence of any such control.

One of the most important innovations embodied in the present volume is a review by Dr. H. FRANKLIN PARSONS of the behaviour of indigenous diseases in this country. He draws attention to the fact that measles, unlike most other infectious diseases, has manifested very little tendency to diminish since the passing of the Public Health Act, 1848, and in explanation of this phenomenon he points out that measles exerts a maximum influence on the working community, and that with the increasing urbanisation of the population the low mortality observed in rural districts is counteracted. It is not, he thinks, that the improvements in housing and other sanitary and social conditions which have taken place in the last 60 years have been without effect, but that their effects have been masked by additional opportunities for infection in urban districts. Similar observations have application, he considers, to the behaviour of whooping-cough, which, like measles, has not responded as much as might have been anticipated to progressive sanitary measures. With respect to the notifiable diseases, Dr. PARSONS shows by means of an instructive table that the mortality from scarlet fever has steadily diminished since the passing of the Public Health Act, 1872. But this lessened mortality is, he points out, to be ascribed not so much to the diminished prevalence of the disease as to its less fatal character. In illustration of this change of type the figures

from the Metropolitan Asylums Board report are furnished from 1871 to 1907. In 1871–80 the fatality rate was 12·1 per cent., since which time it has gradually diminished; in 1907 it was but 2·1 per cent. It would seem, indeed, as if the great diminution in scarlet fever mortality took place before 1890, prior to which year only about 42·8 per cent. of the scarlet fever cases were sent to hospital. In 1907 the percentage was 89·4, in 1908 it was 90·9, and in 1909 the percentage of 90·2 was reached.

Although scarlet fever is now comparatively a trivial disease, so much so that considerable apathy prevails with regard to it, Dr. PARSONS draws attention to the fact that the malady may still occasionally attain something of its old virulence, and he instances an outbreak which occurred in May, 1909, amongst the children attending a public elementary school in the Isle of Portland, in which case "the patients, overwhelmed by the intensity of the poison, died in many instances within 26 or 36 hours. 50 per cent. of the cases that recovered developed sequelæ and complications, especially discharge from the nose and ear." This little outbreak of excessive virulence is all the more interesting owing to the fact that during the last ten years the type of scarlet fever in this island has been particularly mild. The medical officer of health had been unable to ascertain that any new strain of infection had been introduced, and in explanation of the virulence he suggested that the school attacked had not been subject to the immunising effect of repeated epidemics of scarlet fever, this being in accord with the view that when a portion of the population has been visited by epidemics of a particular disease a certain immunity is established. Curiously enough, an outbreak of measles occurred some 20 years ago in connexion with the same school, when the mortality (possibly owing to the same cause, the medical officer of health thinks) was very high. Dr. PARSONS also furnishes a summary of an extremely interesting outbreak of scarlet fever which occurred in Surrey during 1909, and which was attributed by Dr. W. H. HAMER and Dr. T. H. JONES in their joint report to the London County Council to cows and not to human infection. The third great indigenous disease, diphtheria, comes in for extended notice. The behaviour of diphtheria during the last 40 years presents points of great interest. In 1871 to 1880 the death-rate from this disease was only 0·12 per 1000 living, but in 1901 this rate had reached 0·27 per 1000, since which time the mortality has been steadily declining, and in 1907 it amounted to 0·14 per 1000. Dr. PARSONS discusses the several influences likely to have conduced to this decline of diphtheria death-rate, and he lays stress on bacteriological examination and the use of antitoxin, both of which began to be employed about the year 1895. It seems to us no longer possible for those who will read the evidence fairly to gainsay these conclusions.

For many years past it has been the custom for a comprehensive summary to be given in these reports by Dr. R. BRUCE LOW relative to the behaviour of certain exotic diseases, such as plague and cholera, and these have been always of very great value. At the present time, when plague has snapped the bonds of endemicity and is manifesting pandemic tendencies, their interest will be even greater. Dr. BRUCE LOW'S summary as to plague prevalence during 1909 has now special importance, for he reports that, as regards China, epidemics of this disease occurred in Amoy, Canton, Hong-Kong, Swatow, Hankow, Pachoi, Hainan, and other places during that year; in other words, the disease has manifested itself somewhat widely in China for a long time and the explosion at the end of last year was not unexpected by epidemiologists. In Egypt there were 513 cases with 207 deaths, figures which indicate a marked decrease as compared with the two previous years. With respect to Astrakhan in Russia, Dr. BRUCE LOW states that from the meagre reports which have appeared it seems that the plague cases were mostly of the pneumonic type, and that the mortality was heavy. He tells us, too, that four medical men were sent from St. Petersburg to the Kirghiz steppes to take preventive measures, and that one of these medical officers on visiting a group of 21 huts found 15 cases of plague in them, as well as 10 decomposing corpses, which had been lying there for two weeks awaiting burial. This is not very reassuring reading in view of the tendency towards diffusion which is now being manifested by plague; indeed, one of the most striking points in perusing Dr. BRUCE LOW'S summary is the numerous parts of the world in which plague was known to be prevalent in 1909, and the clear indication thus given to observers of the circumstances with us at the present time. During 1909 there were 175,114 deaths from plague in India, and Dr. BRUCE LOW observes that whether the carrying out of preventive measures has led to good results or whether for the time being the virulence of the disease has, for unknown reasons, abated, there was a marked reduction in the number of plague cases during 1908 and 1909. Unfortunately, however, he has from later information to add that for the first eight months of 1910 the total deaths in round numbers amounted to 371,810—i.e., more than double the amount recorded in the whole of 1909. And all our readers know the deplorable position now obtaining.

This final notice of the current medical report affords us an opportunity of bidding farewell in their official capacity to two Local Government Board public officials who have now reached the age limit, under which in the public services retirement is compulsory. It is with very genuine regret that we do this. Dr. FRANKLIN PARSONS is well known as the author of classical reports upon influenza and disinfection and for his work on sundry departmental committees dealing with public health questions of far-reaching importance. But his greatest claim to the gratitude of the public is the valuable routine work which he has day by day carried out at the Local Government Board during so many years. The knowledge which Dr. PARSONS possesses of water analysis and the geology of this country in relation to water-supply is, we believe, incomparable, and in several branches of the public health, notably in the conduct of isolation hospitals, he is an authority. Dr. BRUCE LOW is best known for the admirable annual and special reports upon plague, yellow fever, and cholera which have carried on and brought up to date the classical writings of Dr. NETTEN RADCLIFFE, and he, like his retiring colleague, has

for many years been engaged in detailed administrative work at the office. The fact that both Dr. PARSONS and Dr. BRUCE LOW were medical officers of health before accepting appointments at the Local Government Board has been a fortunate circumstance, for they have been able to appreciate the many difficulties of medical officers of health and to extend to them a sympathetic hearing when they have been consulted. We trust that both these distinguished servants of the State may for many years enjoy their well-earned retirement, and we feel that this wish will be re-echoed throughout the public health service.

## The Negligence of the Public.

THE end of this week being a general holiday will find all streets and roads, pavements and platforms, railways and 'buses, places of entertainment and places of public resort, considerably crowded, and many who make up these crowds, being in holiday mood, will be without any acute sense of responsibility towards their fellows. Now this every-man-for-himself demeanour, although it is accentuated at holiday time in such a way that its selfishness becomes generally apparent, while the tide of small disasters caused by it runs quite high, is, as a matter of fact, commonly prevalent at all seasons. With the increase of social amenities, with the improvement in education, and with a softening of manners that, despite occasional contradictions by hooligans and aliens, is undoubted, there has grown up among us, it sometimes seems, a callousness of attitude in respect of public claims which in ruder times would have met with summary punishment wherever and whenever it was made manifest.

These remarks are in the first instance suggested by the action of Boyle *v.* The Metropolitan Railway Company recently heard in the Court of Appeal. In this case Mr. THOMAS BOYLE, the plaintiff, just after he had descended the stairs at Baker Street station some year or so ago, slipped upon a piece of banana skin, and falling against a wall sustained a compound fracture of his right arm. At the trial before Mr. Justice COLERIDGE and a common jury Mr. BOYLE sued the railway company on the ground of negligence, alleging that it was their duty to remove dangerous things from their platforms and to take care to protect their passengers, and that they had failed to do so. The jury found in his favour, awarding him £500 damages. He has, however, failed to retain this compensation for his suffering. He has our best sympathy, but the decision of the Court of Appeal setting aside the previous verdict appears to us to be based upon perfectly clear legal grounds. The railway company showed that their servants had orders to sweep their premises twice a day and to remove dangerous matter. There was no evidence forthcoming as to how the banana skin had come to be on the platform, or that any opportunity to collect it had existed and had been neglected. As Lord Justice VAUGHAN WILLIAMS pointed out in his judgment, the onus was upon the plaintiff to show that the accident was caused by want of reasonable care on the part of the defendants, and there was not a particle of evidence to show when the piece of banana skin had been thrown down. For all the evidence given it might have been dropped within a second of the occurrence of the accident. When we sympathise with the plaintiff in the physical pain which he has suffered, and in the anxiety and financial loss occasioned by unsuccessful litigation, we do not forget that the Metropolitan Railway Company would equally have been entitled to commiseration if heavy damages had been given against them for the abominably selfish negligence of a passenger. The orange skin or the banana skin thrown down upon a pavement is, however, only a specimen, a very common specimen, of public selfishness. In every year an appreciable amount of injuries of a more or less serious nature are caused by the practice, which in this way has a distinct medical interest, while the offence is so difficult to prevent by enforcing municipal by-laws to that effect that the community may be said to acquiesce in a practice which it regards as inevitable. How to substitute for that acquiescence in this nuisance and in others, some greater, some less, any effective method of prevention is a question not easy to answer. We are not as a nation fond of allowing police interference with our petty liberties, or of submitting ourselves to what we regard as unnecessary discipline in our daily lives. In Germany, where the habit of obedience to authority is assisted by a military system which trains and disciplines the classes of the community most in need of such education, passengers in the streets have to conform to rules of conduct of the possibility of which a large proportion of our citizens have never dreamt, but for the enforcement of which they would be all the better. The throwing of the banana skin where it may cause an accident is only a single instance of the same reckless selfishness which is responsible for the act of the person who neglects to provide covers for dustbins, who expectorates in public places, or who carries a stick or an umbrella in such a position that it endangers the eyes of those in the immediate neighbourhood.

It must be admitted that the somewhat ponderous and expensive nature of our legal procedure, admirable as it is for dealing with crime, is an obstacle to its every-day employment for the prevention of social and sanitary offences of which a large portion of otherwise decent people are daily guilty. The only remedy available, therefore, would seem to be the encouragement of a healthy public opinion which conceivably in time will so diminish undesirable practices of the kind indicated as to render possible the punishment of those persisting in them. The difficulty is that public opinion cannot easily make itself felt. We are reserved as a nation and not fond of indulging in quarrels or of making public demonstration of our opinions, otherwise active remonstrance by offended citizens would improve the behaviour of many whose misconduct is due more to stupid thoughtlessness than to any wilful disregard for others.

THE IMPERIAL HEALTH CONGRESS.—In connexion with this congress, which is to be held in London on July 6th and 7th, the Princess Louise, Duchess of Argyll, has promised to inaugurate an open-air fête on July 5th.

# Annotations.

"Ne quid nimis."

## AUSCULTATION IN LIFE ASSURANCE EXAMINATIONS.

IN a paper read before the Life Assurance Medical Officers' Association, entitled "Some Auscultatory Problems in Insurance Examinations," Dr. R. A. Young reviewed recently the difficulties of interpretation of auscultatory physical signs encountered by the medical officer during the course of the routine medical examination prescribed by most insurance companies. He pointed out that the newer methods of diagnosis applicable in ordinary medical practice are for the most part not available for the use of the insurance examiner owing to the expense and delay involved, and that the history given by many proposers is scanty and often misleading. The examiner is, therefore, left to establish the absence of disease armed chiefly with a tape-measure, a weighing-machine, a stethoscope, a few testing reagents, and his otherwise unaided senses, unless he is assiduous and well equipped, when a microscope may be pressed into service occasionally. The stethoscope is, therefore, of great importance, and the information it yields requires careful consideration, since it is not sufficiently emphasised that departures from the generally accepted normal standards of auscultatory sounds are not uncommon and are yet compatible with perfect health. The differentiation of these conditions from those which are the index of commencing disease or the stigma of past attacks is obviously of great importance from an insurance standpoint. In connexion with auscultation of the heart Dr. Young discussed the significance of variations in the rate, rhythm, intensity, and quality of the heart sounds and the differentiation of murmurs indicative of serious organic derangement of the valves or muscle of the heart from those of functional or exocardial character. In connexion with the rhythm of the heart sounds, the question of irregularity or arrhythmia was discussed at some length. The general conclusions arrived at were that a single irregularity in a young subject in association with respiration is of no serious importance, even though there may be a history of occasional slight syncopal attacks and even if an exocardial murmur be present. Cases with irregularities due to smoking and to over-indulgence in tea and coffee may be accepted after postponement on trial. Extra systoles in young and middle-aged people are not necessarily of serious character in the absence of arterio-sclerotic changes and of signs of cardiac enlargement, but should be regarded with suspicion and probably declined. Irregularities due to heart-block, to weakened muscular power, and those associated with valvular or myocardial lesions cannot be considered as insurable on any terms. In connexion with organic murmurs, the difficulties met with in some cases of mitral stenosis and of aortic regurgitation were discussed, and the importance of auscultating in both the erect and recumbent positions was emphasised. The various functional and exocardial or spurious murmurs were categorically considered and the features by which they could be recognised were outlined. The problems afforded by auscultation of the respiratory system were described as no less difficult than those in connexion with the circulatory mechanism. The physiological differences in breath sounds and in voice sounds occurring at the right apex and over the right upper lobe were carefully worked out, and the distinction from the signs of early tuberculous disease was discussed. The nature of cog-wheel breathing and of the cardio-respiratory murmur so commonly heard in normal chests was considered, and it was stated that true jerky or cog-wheel breath sounds heard constantly at one apex and at a distance from the heart, so that a cardiac systolic origin of the cogging can be excluded, are very suggestive of early tuberculous deposit and must lead to careful search for other physical signs. In connexion with the breath sounds, the occurrence of muscular sounds heard in shivering or in emphysema was also referred to as requiring care in some cases. Various spurious râles, creaks, and clicks due to fascial movements, to deglutition of saliva, and to movements of the head were described, and also the atelectatic râles heard in the infra-axillary regions of many normal persons. Probably most practitioners, both in ordinary practice and in insurance work, have been faced with problems such as those referred to, but their collection in the paper to which we have referred served a useful purpose and should be of value, especially to the occasional examiner for insurance purposes.

## THE EASTER EGG.

IT does not require any shrewd guess to account for the association of Eastertide with the egg. In the days when old customs were, relatively speaking, young, neither physiology nor chemistry had revealed much as regards the inner secrets of the egg, but instinct taught that it must from the very nature of its function be a strong aid towards replacing the waste of the human body, and it is interesting to find that eggs were regarded by the Church as a blessed food after a fast. On Easter Eve and Easter Day all the heads of the families sent great chargers full of hard eggs to the Church for a blessing. "These blest eggs have the virtue of sanctifying the entrails of the body and are to be the first fat or fleshy nourishment they take after the abstinence of Lent." It is interesting to compare this statement with the modern physiological view of the food value of the egg. The absorption of eggs in the intestinal tract is known to be very complete, for it has been found that even when 21 hard-boiled eggs are taken daily they are absorbed as completely as meat, only 5 per cent. of the dried substance being lost. The direction of the Church was therefore in complete harmony with modern scientific views. The introduction of varied colours followed, no doubt, the custom of colouring eggs red to denote the blood of the Christ. There is, however, some evidence to show that varied colours were used in pre-Christian times, and that red was the colour adopted when the custom was taken over by the Church.

## INTERMITTENT HERNIA OF THE LEFT LUNG AFTER CRUSHING OF THE CHEST.

AT a meeting of the Société Médicale des Hôpitaux of Paris on Feb. 10th M. Galliard and M. Baufle showed a carman, aged 21 years, who was caught between a wall and a cart and had his chest crushed on Nov. 6th, 1908. There was no wound, but the sternal region immediately became swollen. He was taken to a hospital "more dead than alive," where he remained until Jan. 20th, 1909. He coughed up a little blood. He resumed his occupation. In January, 1911, he was admitted to the Lariboisière Hospital under the care of M. Galliard for a slight attack of influenza. It was found that the left side of the chest in front was slightly depressed and that the pectoralis major was atrophied. The normal prominence formed by the fourth rib was replaced by a depression, at the bottom of which the heart could be seen to beat. This depression admitted three fingers. It resulted from the separation of the two fragments of the fourth rib, which was broken at the time of the accident. The external fragment projected above the nipple. The internal fragment

appeared to have ascended behind the third rib. A radiogram showed mal-union of the third rib, the two fragments overriding. When the patient made an effort, or coughed, the skin over the left side of the chest was elevated by a soft swelling eight centimetres in diameter, which after the effort became spontaneously reduced. It was due to a hernia of the left lung which passed out beside the heart. The hernial orifice was not large and could be closed by a single finger and the formation of the pneumonocele prevented. The patient did not ask for treatment as he was not impeded by the hernia. Although the hernia was not increasing M. Galliard considered the prognosis to be grave. Several methods of treatment were discussed. A radical cure could not be effected without producing pneumothorax. Opening of the hernial sac would allow the entrance of air, which, however, surgeons do not regard as a serious matter. On the other hand, approximation of the two fragments of the fourth rib would probably be difficult to produce and maintain by suture. Perhaps one fragment was partly absorbed or ankylosed to the third rib. Compression with a bandage might be tried, but would the bandage be tolerated?

## THE DESTRUCTION OF FLEAS BY EXPOSURE TO THE SUN.

THE danger of importation of plague from the presence of fleas in travellers' baggage is, no doubt, a real one, and the question of efficient disinfection is not always easy of solution; the routine procedure that passes under that name is often absolutely futile. In India, where the clothing and baggage of the native inhabitants are generally of a very simple character, and where, on account of the enormous number of persons concerned, simplicity and cheapness are the essentials in any procedure that is likely to be of practical use, experiments have recently been carried out by Captain J. Cunningham, I.M.S., in order to devise a suitable method.[1] Various powders have been reputed to be effective, and were tried; naphthaline acted well, but was too slow, requiring six and a half hours to kill fleas in a closed space and nine hours in the open. It was then determined to ascertain the effect of the light and heat of the sun. In previous experiments it had been found that rags, spread on the ground in thin layers, were freed from fleas in three hours: in the first part of the present investigation it was sought to determine the different ways in which fleas behave when clothes are spread out on different kinds of ground. Tin trays were made, 4 ft. by 4½ ft., with sides 4 in. high; in these were placed *dhurries* (cotton carpets), spread over the surface; and then 100 fleas were introduced, half above and half below the carpet. The tray was then drawn out into the sun, the temperature taken, and the behaviour of the fleas carefully watched: they were seen trying to escape from the glare, but after seven minutes all were killed that were on the surface, and at the end of half an hour all beneath the dhurrie were also found to be dead. When dhurries were spread on sand the effects were more marked, the sand absorbing the sun's heat faster than the tray surface; the fleas made no attempt to burrow into the sand, but were almost immediately killed. When dhurries were spread on leaves and grass the fleas dived under the grass and got protection from the sun. The time of exposure necessary to destroy all fleas was reckoned to be about 45 minutes when clothes were spread on hard ground, and somewhat less on sand, the temperature being 117° F. under, and 118° to 142° on the surface of, the carpets. The next point was to determine how far fleas could travel on sand under these temperature conditions without being destroyed. A "flea-park" was constructed of smooth soil, spread over with a 3-inch layer of dry sand, and enclosed in walls of tin, so constructed as to form a square which could be enlarged or diminished at will; the pieces of tin were bent at right angles, so that adjoining the vertical 6-inch "wall" there was a horizontal surface 8 in. wide; this was covered with white paint and resin just before any experiment was commenced. The flea-infested carpet was laid in the middle of the square; at the end of an hour's exposure to the sun the paint-covered marginal surfaces were examined to see if any fleas had travelled as far; if this was found to be the case, the "park" was enlarged, the walls being placed farther off from the carpet. In one set of experiments the sand was kept in the shade until the commencement of the observations, and only then exposed to the sun; the distance from the carpet to which the fleas could travel was found to be 4 ft. In a second set the square was prepared in the same way as it would be in practice—viz., the carpet was not placed in position until thermometers on the sand registered 120° F.; under these conditions no fleas were able to travel more than 2 ft. from the edge of the carpet; all were killed. Lastly, experiments were made with the padded cotton quilts (*resais*) ordinarily used by natives to see if they protected the fleas from the sun's heat; in one or two cases the heat did not penetrate the whole thickness of the quilt, and some fleas survived, but on turning the quilt over no fleas were found alive after an hour's exposure to the sun; the temperature inside the quilt was found to reach 143° F. As a result it is seen that the sun acts as a very efficient disinfectant for flea-infested clothing, simple to use, and free of expense. The rules drawn up are quite plain and easy of application. The ground must be fully exposed to the sun, flat, and devoid of anything that can shelter the fleas, and entirely covered with a 3-inch layer of fine sand. The surface temperature of the sand must be at least 120° F. before the clothing is spread upon it. The clothes must be spread evenly in a single layer and left for one hour in the sun, padded articles being turned once or twice; no clothes to be placed within 3 ft. of the edge of the sand. The whole area should be fenced in to keep off animals. Here we have an absolutely simple and inexpensive form of disinfection, adapted to the carrier of the plague germ, and applicable to all tropical countries where, as in India, the seasons are regular, and there is continuous sunshine during many hours for the greater part of the year. The experiments appear to have been most ingeniously contrived, and to have left no loophole for the fleas. We take it that there would be no likelihood whatever of their escaping on the person or clothing of the operator.

[1] Scientific Memoirs of the Medical and Sanitary Departments of the Government of India. New Series, No. 40. The Destruction of Fleas by Exposure to the Sun. By Captain J. Cunningham, I.M.S., M.D. Price 9d.

## CLEANLINESS FOR THE COLLIER.

IT is an old observation that superficial wounds occurring in coal-miners, though necessarily fouled with the dirt of the mine, as a rule heal remarkably well; also, bacterial examination has shown that fresh coal taken from the working face is practically sterile. Even if this be invariably the case it is not a valid argument for colliers to be content to remain dirty. Professor Henry Louis of Newcastle has pointed out that a probable cause for the prevalence of lung disease amongst miners lies in, what he calls, the universal custom among the men in this country of walking home in their damp and dirty pit clothing, instead of changing into warm and dry clothes at the mine. We are unwilling to admit that the Britisher is less clean in his habits and tastes than the continental worker of a similar class; but the authority just quoted, writing in 1902, stated that colliery

owners had tried the experiment of providing changing houses and baths for the men at the pit's mouth, but always found that they declined to avail themselves of these conveniences; yet in Germany it is a usual custom for bathrooms to be provided at the pithead, where the miners take off their clean clothes before descending, and where they change their dirty clothes and bathe on returning from the pit. As many as 500 separate cabinets and shower baths are sometimes provided in one bathroom. A miner covered with coal dust is never seen outside a colliery in Westphalia, we are told, and a German miner is never seen on the road in his pit clothes. In the Coal Mines Bill now before Parliament provision is made for "suitable accommodation and facilities for taking baths and drying clothes for persons employed underground" in mines. The use of these is to be obligatory on the colliers, and each miner is liable to contribute 1*d.* per week towards the expenses of maintenance. It is quite time that this sanitary reform was instituted, so as to bring our practice up to the level of that obtaining in Westphalia and Belgium. We understand that in South Wales the miners' leaders are in favour of this provision, and that baths are to be erected at the Harris Deep Navigation Colliery in Monmouthshire. The Ogmore Vale urban district council has adopted resolutions in favour of petitioning the local colliery owners to adopt the prosposal. Mr. Henry Davies, director of mining education for Glamorgan, is dealing with the subject in a pamphlet shortly to be issued, and there is little doubt that the importance of this sanitary improvement will become generally recognised. It is matter for regret that Great Britain should have so long been behind continental industrial hygienic practice in this respect.

## A VENOUS HUM IN THE EPIGASTRIUM IN CIRRHOSIS OF THE LIVER.

IN the *American Journal of Medical Sciences* for March Professor W. S. Thayer of the Johns Hopkins University has reported a case of venous hum in the epigastrium in cirrhosis of the liver. The patient was a physician, aged 49 years, who had led an exceedingly active life. He had lived fairly well and probably taken whisky three or four times daily. Two years before he came under observation he had hæmatemesis after a heavy supper. After that he remained well until 11 days before he was seen, when, while driving, he coughed up about an ounce of dark blood. The hæmatemesis continued and was accompanied by melæna. On examination on Nov. 3rd, 1905, he was extremely blanched. The apex beat of the heart was in the fourth space within the mammillary line, and a blowing systolic murmur was heard all over the præcordium. The liver was felt one or two finger-breadths below the costal margin, and the spleen two or three finger-breadths below on deep inspiration. The hæmoglobin amounted to between 20 and 30 per cent. The veins in the epigastrium and along the costal margin were a little distended. He was admitted into hospital and Blaud's pills were given. On Nov. 20th the hæmoglobin amounted to 56 per cent., and the systolic murmur had disappeared. At the base of the xiphoid cartilage a loud continuous venous hum, slightly increased on inspiration, was heard. It was transmitted a little downwards, but disappeared before the tip of the ensiform cartilage was reached. It was transmitted 4 centimetres to the right and 6 to the left. He left hospital on Nov. 27th and returned to his work at Christmas. In January, 1906, he vomited a tablespoonful of blood. A loud venous hum was audible in the xiphoid notch. Attacks of melæna and hæmatemesis followed. In April there was increasing œdema of the legs, and a fine thrill was felt in the epigastrium. The patient recovered health and for four years led an active life, though there were occasional dark-coloured stools. On Oct. 16th, 1910, an attack of vomiting occurred, and he became drowsy and then comatose. On the following day the venous hum in the epigastrium had disappeared, ascites was present, several violent convulsions occurred, and he died. There was obviously cirrhosis of the liver, during the greater part of the course of which ascites was absent owing to a free anastomotic circulation. What was the cause of the epigastric murmur and thrill? The latter suggested that the vibrations must have arisen in veins near the surface. Probably it arose in varicosities dependent upon anastomoses between dilated venules in the suspensory ligament and radicles of the internal mammary veins. Many observers have referred to the thrill and murmur which may be heard at times over the varicosities occasionally seen about the umbilicus and in the epigastrium in cirrhosis of the liver. Cases have also been recorded in which a loud epigastric hum was heard in cirrhosis of the liver without the presence of notably large cutaneous veins. In 1859 Sappey described a case which was demonstrated to him by Trousseau. At the necropsy was found a voluminous vein extending from the sinus of the portal vein towards the umbilicus, where it ramified and anastomosed with the epigastric veins. In most of the cases in which cutaneous varicosities were absent the murmur was heard best about the umbilicus and along the middle line of the epigastrium—i.e., along the course of the round ligament. In a few of these cases it has been found that the incompletely closed umbilical vein had become greatly dilated as a result of increased portal pressure. In others a large dilated vein has been found in the round ligament running alongside of the obliterated umbilical vessel, doubtless a dilatation of a small parumbilical vein. These murmurs must be distinguished from the slight venous hum sometimes heard in the anæmic just above and to the right of the umbilicus over the inferior vena cava—murmurs which may be brought out by pressure in thin persons.

## CAN THE ANTELOPE IN UGANDA ACT AS A RESERVOIR OF THE SLEEPING SICKNESS VIRUS?

NEARLY three years have passed since operations on a large scale were carried out in Uganda with a view to stopping the spread of sleeping sickness by depopulating the area around the great Victoria Nyanza. It was confidently expected that if the tsetse flies had no opportunity of biting infected persons the infection in these insects would in time tend gradually to disappear, seeing that there is no hereditary transmission of Trypanosoma gambiense in the Glossina palpalis. Unfortunately these anticipations were not realised, the investigators sent out by the Royal Society having found that the flies are still at the present time infected and capable of conveying the disease. It was suggested in explanation of this that either the tsetse flies lived longer than two years, continuing capable of conveying sleeping sickness, or else, and more probably, that wild animals or birds living in the region round the lake had become infected with T. gambiense and were now acting as a reservoir of the sleeping sickness virus. In order to test the truth of this latter view Colonel Sir David Bruce, F.R.S., with his two colleagues, Captain A. E. Hamerton, R.A.M.C., and Captain H. R. Bateman, R.A.M.C., members of the Royal Society's Sleeping Sickness Commission, undertook a series of experiments on the spot, and their interesting and valuable report was presented at the January meeting of the society. It appears from this report that since the native population and their cattle were removed from the vicinity of the Victoria Nyanza, that area

has become practically a huge game preserve, in which many wild animals, including various species of antelope, abound. Experiments were carried out upon three kinds of antelope—viz., bush-buck, reed-buck, and water-buck—with the view of ascertaining if these animals might act as a reservoir of the sleeping sickness virus; and as a result it was demonstrated most conclusively that all three species can be readily infected with a human strain of T. gambiense after being bitten by infected Glossina palpalis, and that one exposure to the bites of the flies can give rise to the disease in antelopes. It is, however, remarkable that although the antelope may be proved to be infected and capable of conveying infection if its blood be injected into a healthy susceptible animal such as a monkey, yet careful and continued examination over prolonged periods may fail to reveal the presence of the parasite in the antelope's blood; moreover, the buck experimented upon remained apparently in perfect health for a period of some months while under close supervision. The incubation period in the antelope appears to be about seven days; when once infected these animals can give the infection to "clean" (uninfected) laboratory-bred flies, which again in their turn can convey the disease to monkeys or other susceptible animals upon which they may afterwards feed. The Commissioners, therefore, are able to conclude that the antelopes which abound in the fly-infected area around the Victoria Nyanza are "potential" reservoirs of the sleeping sickness virus. So far, however, no antelope has been discovered naturally infected with T. gambiense. In order to settle the question whether antelopes do in nature suffer from the disease arrangements were made to organise a series of game drives in the fly-belt and, as far as possible, in the neighbourhood of the Commissioner's laboratory, so that opportunities might be furnished for injecting the blood of recently killed or captured antelopes or other game into healthy monkeys or rats, a supply of which and of laboratory-bred uninfected glossina were to be kept at hand in readiness for the experiment. Unfortunately, before the necessary arrangements could be completed Sir David Bruce and his two colleagues were recalled to England. The work of the Commission, we understand, is to be continued by Dr. R. A. L. van Someren, of the Uganda Medical Staff, and Captain A. D. Fraser, R.A.M.C., who have been instructed to take over the laboratory work. It is greatly to be hoped that these fresh investigators will carry out the field experiments planned by their predecessors, for if definite results are obtained they will be of great value in leading to a settlement of the vexed question whether antelopes, or if not antelopes what other animals, are acting as reservoirs of the sleeping sickness virus, and permitting new generations of glossina to become infected, thus continuing the conditions which have made the shores of the great inland sea practically uninhabitable for human beings.

## ABSCESS OF THE BREAST DURING PREGNANCY.

ABSCESS of the breast during pregnancy, though not very rare, has not received much attention from medical writers. In the *Boston Medical and Surgical Journal* of Feb. 9th Dr. J. T. Williams has reported the following case. A woman, aged 26 years, was in her sixth pregnancy. She did not nurse any of her children more than three months in consequence of scarcity of milk. She never had any serious trouble with her breasts. On Oct. 17th, 1910, she sought advice. For two weeks the left breast had been swollen and tender, and she suffered from chills, malaise, and aching pains in the back and limbs. In the lower inner quadrant of the breast was an exquisitely tender lump of the size of a hen's egg, over which the skin was slightly reddened. The right breast contained a moderate amount of watery fluid but was perfectly soft throughout. Both nipples were sound. The temperature was 100° F. and the pulse 90. Ice was applied to the left breast with a supporting bandage and saline cathartics were given, but the lump increased and became red and brawny. On Oct. 21st a small incision was made under ether and two drachms of pus were evacuated. A gauze wick was inserted and dry sterile dressing applied. The temperature fell at once to normal and the discharge rapidly decreased. On the 27th the lower hemisphere of the opposite breast became "caked" and tender, and the temperature rose to 102 5°. Under ice and salts this breast softened rapidly, but two days later the left breast again became "caked" along the axillary border. Ice was again applied to the left breast, which subsided rapidly, and by the end of a week both were soft. She was delivered on Dec. 1st. On the fifth day of the puerperium the left breast became painful and tender, but rapidly subsided under ice and saline cathartics. She nursed the child, although the milk-supply was scanty and required supplementing. Dr. Williams attributes the abscess to infection by way of the milk-ducts. The infecting agent found a good culture medium in consequence of the engorgement of the breast. Organisms are present on the nipples and in the milk-ducts of the majority of women in greater or less number according to the habits of cleanliness and care of the nipples. Ordinarily these are innocuous. When engorgement occurs the conditions become favourable to their growth. If the resistance of the breast tissues is lowered by injury or the organisms are of unusual virulence suppuration takes place. Rubeska has shown that the staphylococcus aureus and albus are the most common causes of mammary abscess, the streptococcus being relatively rare. Kostlin examined the fluid from the breast of 100 pregnant women. He found it sterile in 14. In the other 86 the staphylococcus albus was present and in two the staphylococcus aureus also. Cases have been recorded in which abscess of the breast during pregnancy was secondary to some other condition. A case of double mastitis during the sixth month of pregnancy from eczema and impetigo of the nipples has been reported. Pus formed in the right breast and was evacuated by incision. Fifteen days later the left breast was incised, but only turbid fluid was obtained. A primigravida had her breast accidentally scalded by hot coffee. An abscess developed from which several ounces of pus, yielding a pure culture of streptococci, were obtained on incision.

## THE MANIPULATION OF FLOUR.

TWO important reports dealing with the bleaching of flour have recently been issued by the Local Government Board. A report also upon the presence of calcium sulphate in baking powder and self-raising flour has been issued concurrently by the same department. The subject of chemically bleached flour has been referred to in these columns on several occasions, and we have not hesitated to condemn the practice as one that is totally unnecessary and one also which might conceivably be prejudicial to the health of the consumer. It appears to us that the determined steps taken by other countries, notably by our own Commonwealth of Australia, by the United States of America, and by Switzerland, to banish the practice by statute should provide a useful object-lesson to the legislators of this country. In one of the reports referred to Dr. J. M. Hamill concludes that the alterations in, and the additions to, flour which result from a high degree of bleaching by nitrogen peroxide cannot be regarded as free from risk to the consumer, especially when regard is had to the inhibitory effect of the bleaching agent on digestive processes and enzymes. The mere fact, further, that bleached flour has been shown to be something more than natural flour, with the

colour modified, is also of importance in considering whether bleached flour may properly be represented as genuine flour. If that is the case, what shall be said of the practice of adding "improvers" to flour? Here, again, we have a lead given to us by the countries already referred to, the use of "improvers" being prohibited there by official requirements. An "improver" may mean phosphoric acid, hydrofluoric acid, phosphorus pentachloride or sulphide. We must express general agreement with Dr. Hamill when he says that many millers are unaware of the nature and composition of the "improvers" which they add to flour, and the increasing activity which is now being displayed in the use of different articles as additions to flour must be regarded with considerable apprehension. In one of the reports referred to Dr. G. W. Monier-Williams contributes a valuable article on the chemical changes produced in flour by bleaching, and Dr. A. Harden, an interesting series of bio-chemical researches. In the report upon the presence of calcium sulphate in baking powder and self-raising flour it appears that this salt has its origin in the acid calcium phosphate which is used as the agent to disengage the carbonic acid gas from the bicarbonate of soda present in the powder. Recommendations are made providing for the use of purer acid calcium phosphate, a limit being suggested as to the amount of calcium sulphate present. Altogether these disclosures seem to us to indicate a most unsatisfactory state of things in regard to the great question of food control. It is quite evident that there are manufacturers amongst us who have no scruple about manipulating the leading food of the people, and we do not believe that this practice is done in the interests of the consumer at all. It is done purely to make an inferior article attractive and then "things are not what they seem."

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AN election for a Direct Representative for England on the General Medical Council will be held at the earliest opportunity, nominations in due form having to be received at the office of the Council, addressed to Mr. H. E. Allen, on or before April 29th.

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Sir Thomas Barlow, Bart., K.C.V.O., was re-elected President of the Royal College of Physicians of London at a Comitia held on Monday, April 10th, receiving 90 votes out of 93.

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# Looking Back.

FROM

## THE LANCET, *SATURDAY*, April 13th, 1833.

THE tribunal of police of Rouen, has just condemned the notorious travelling "oculist" WILLIAMS, to a pecuniary fine for selling his nostrums in that town. For the last six months also, the importation of English patent medicines into France, has been totally prohibited by a government order. The English idlers at Paris express considerable annoyance at this deprivation, which has the good effect of cutting off a large source of profit from the ignorant manufacturers of those mischievous compounds.

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CORRESPONDENTS, &c.

Some other communications ought to be acknowledged, and we apologise for the omission. The insertion of such an immense mass of letters and essays is absolutely impossible; even the perusal of so many papers, is a work of greater labour than can be well conceived. Many of our correspondents would appear to disregard all ordinary modes of writing, in order to give their productions the character of hieroglyphics—thus demanding a vast expenditure of time in deciphering. We, therefore, take this opportunity of again imploring our correspondents to condense their facts, to cast aside hypothesis, and to transcribe their productions in a manner to suit the eyes of compositors, who are compelled to work night and day, sometimes aided by a clouded sun, at others assisted by a not over brilliant gas-light.—Ed. L. April 13th, 1833.

# MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

*An Up-to-date Motor Ambulance.*

Messrs. J. and A. Carter of New Cavendish-street, W., have recently built for the Fire Department of Pretoria a motor ambulance which certainly seems to combine comfort with every facility for the prompt conveyance of an invalid. The chassis is a four-cylinder 1911 Minerva "Silent Knight" with four speeds, specially geared for ambulance work and hill-climbing, and having a clearance of 9 in. from the ground. The springs are "Grasshopper Pattern Semi-elliptic," and are composed of seven plates instead of eight, and are extended 6 in. longer than the usual standard pattern in order to obtain greater resilience and flexibility. Accommodation is afforded for two stretchers, and the loading is facilitated by an extension piece upon which the stretchers can rest; by this means the necessity for one of the stretcher-bearers climbing into the car is obviated. The stretchers and the swing frames upon which they rest are collapsible, folding into a small compass for packing, and as both are easily detachable the car can be instantly converted into a travelling conveyance for passengers or convalescents. Solid tyres are fitted, but this does not in any way affect the easy riding, for the spring-stuffed cushion seats and backrests, combined with the special resilience of the springs, eliminate all jar and vibration. While at New Cavendish-street I was also afforded an opportunity of seeing Messrs. Carter's Bastilon Suspension Spring, which is fitted beneath the stretchers in horsed and many motor ambulances. These springs themselves form the fulcrum and are contained in a central circular box with radiating arms, and because practice is worth a lot of precept I tested a stretcher suspended by them. I must say that they are undoubtedly an aid in securing comfort for those requiring ambulance transport, the great feature being that the comparative resilience and flexibility of the spring are equal under any strain—that is, it adjusts itself to support 1 or 26 st., in each case affording the exact support required to equalise jar and absorb vibration.

*The Silent Knight.*

As a rule, it has been my lot to test chiefly cars that cost about £150 to £300, as these are the most commonly used cars among the profession; but so many have asked me about more expensive vehicles, and especially the 12 h.p. and 15 h.p. models manufactured by the Daimler Company, Limited, that I was pleased recently to have an opportunity to sample one. Preconceived ideas, in medical as well as in automobile matters, are to be deprecated, but though a new midwifery forceps may be better than the one we are in the habit of using, still, I know that most medical men prefer their own old type, and it was with a kindred feeling that I recently mounted the 12 h.p. landaulette. The old poppet valves have served me so well that I almost felt a traitor in driving an alien engine, even for a few hours. This ingrained idea was soon dispersed as we flew over Surrey hills, past Addington—or Eddington, as the manor which was granted to Tezelin after the Conquest, on his undertaking to make "hastias" in the King's kitchen on coronation day, was called, and I believe the present lord of the manor is still bound to present a dish of pottage to the Sovereign at the coronation dinner—then by the low shingled spire of Sanderstead on to Warlingham, over roads certainly rough enough to test the suspension, along the Pilgrim's-road by Titsey Park, up Betsom's Hill, which needed the first speed round Hawley Corner, up a 1 in 8 hill, almost all on second speed; then into Wolfeland to Westerham, up the Westerham Hill, through Bromley and Lewisham to London, in and out among the traffic to the Edgware-road. Stanmore Hill was done 1 in 15 easily on the top speed, as well as the ascent at Bushey, round to the right to Bushey Hall, once a hydro and now a comfortable hotel, where a feature is made of Turkish baths combined, at the desire of their medical attendants for those suffering from rheumatism, with bromo-iodine water supplied from the new well at Woodhall Spa. On top speeds the engine certainly merits the claim it makes for silence, and the suspension, which I tested thoroughly near Warlingham, is ideal. The auxiliary spiral springs at the rear of the

frame absorb all minor vibrations and leave to the main springs the duty of looking after the more violent shocks.

The engine has four cylinders cast in pairs, the bore being 80 mm. and the stroke 130 mm. This gives a Treasury rating of 15·9 h.p. and thus to the profession a £2 2s. tax. As is usual with the Daimler engine, the cylinder heads are cast separately. It is thus a simple operation to clean out the combustion chamber when this is required. An interesting point is that the water jackets between the heads are made by a ring of compressed rubber, which is pushed into place after the heads have been bolted down to the cylinders, and as the heads are provided with spacious water jackets overheating is practically unknown. The connecting rods are steel stampings, machined all over and carefully equalised in weight, and the big end bearings as well as the five crank-shaft bearings are lined with white metal. At the end of the crank-shaft a silent chain drive conveys the motion to the eccentric, or half-speed shaft, which, by means of short connecting rods, operates the sliding sleeves that open or close the ports which represent respectively the inlet and exhaust valves. These sleeves are provided with parallel grooves so that the lubricating oil is carried right up to the head. The question of pressure-fed or gravity-supplied petrol is open to discussion; many argue that the former has the advantage, as it permits of low seats and an accessible carburettor; still, where the driver's seat is sufficiently elevated to make the feed positive on any grade, then the simplicity of the latter system is a powerful argument. Anyway, on this car the petrol tank is at the rear of the car, and the supply is by pressure maintained by an air-pump driven off the eccentric shaft. At the front of the engine there is a cross shaft driven by spiral gearing, one end driving the magneto and the other the water-pump. The ignition is by a C.A.V. magneto, which provides magneto for ordinary use, and accumulator for starting. The change-over switch is placed in a convenient position below the steering wheel. The carburettor is a good example of the two-jet type, and from my experience I must say gives excellent results.

The lubricating arrangement is simple and efficient. The bottom half of the base chamber is constructed to hold a supply of about two gallons of oil, and an overflow tap indicates the maximum level. At the rear of the crank-case is a small plunger pump, operated by a rod from the eccentric shaft above, and this pump delivers the oil through pipes to four troughs situated immediately beneath the ends of the connecting rods, which are provided with scoops that dip into the oil and splash it up to the piston and sleeves. The oil then drips down into pockets above the main crank-shaft bearings and subsequently passes through a gauze filter into the reservoir to be used over again. A gauge on the dashboard indicates that the system is working. The lubrication is also varied in amount to suit the different conditions of running, for the troughs are adjustable in height, relative to the connecting rods, and the movement of the troughs varies with that of the throttle lever—fully open throttle deep trough, closed throttle shallow trough. The clutch is of the popular and satisfactory leather-faced cone type, and has a flat spring beneath the leather to ensure easy starting. Between the clutch and the gearbox there is a flexible coupling. The gearbox, which is a one-piece casting, and thus does away with any tendency for the leaking of grease, provides three forward speeds and one reverse speed, all controlled by a "gate"-worked lever. At the rear of the gear-box is a wide cast brake drum on which the hand-applied brake works, and behind this comes the main universal joint, which is well provided with means of lubrication. From here the propeller shaft takes the power to the worm gear, situated beneath the rear axle. The engine and gear-box are inclined, so that the drive from the crank-shaft to the rear axle is in a straight line, and this, of course, reduces the wear on the universal joints to a negligible amount. The pedal brake applies external band brakes on the rear wheels. The reversal of the usual order certainly seems an improvement, as all who drive, I believe, are prone to use their foot brake, and it is better that the commonly employed one should not act on the propeller shaft, for braking by that means, though powerful, must be unhealthy for the transmission gear.

Detachable wire wheels are fitted as standard and a convenient place for carrying the spare wheel is arranged on the footboard on the driver's side of the car. These wheels are certainly excellent, but, I suppose from habit, I like the ordinary kind and the ever useful easily attached Stepney spare wheel. The wheel base of the chassis is 9 ft. 8 in. and the track 4 ft. 4 in.; either raked or standard angle steering can be supplied. Six standard bodies are listed and the price varies from £460 to £560 for the completed car with electric lamps, horn, and a full kit of tools and spares. The car behaved in every way satisfactorily, and I understand that the silent chain-driven sleeves answer well and have not given any trouble. If they did they would not be so easy to adjust or replace as the poppet valve, which, with a good valve lifter, can be taken out and replaced in a few minutes.

*An Improvement in Electric Lamp Holders.*

The double-ended holder usually fitted has occasionally been found to be inadequate to carry the current, thus causing the light to flicker, but if carefully introduced the results are as a rule satisfactory. Still, to prevent a short circuit the two ends had to be pushed in absolutely true with the contacts, and as they were invariably taken out when the lamps were removed during the cleaning of the car this was certainly one, and I believe the only, objection to electric lighting. Messrs. Vandervell and Co., of Acton Vale, W., have introduced a new holder which eliminates the weak points of the old type and is interchangeable with their standard fittings.

*Solidified Petrol.*

Solidified petrol is a jelly-like body obtained by dissolving stearic acid after treatment with hydrochloric acid in petrol. It is not, I believe, a chemical combination, but the petrol is merely, if I can call it so, suspended in a kind of sponge. As the jelly gives off its gas easily it can be employed without the ordinary float carburettor, merely a box, with an air inlet and suitable pipes leading to the inlet valves, the engine suction being sufficient to draw off the gas, which is given off without converting the jelly back to liquid form. I understand that the cost will be only slightly in excess of ordinary motor spirit, and as soon as it has been proved by actual use for long periods on ordinary cars its greater convenience in handling will doubtless attract many.

*The Gabriel Automatic Wind Shield Cleaner.*

Messrs. Brown Brothers of Great Eastern-street, E., have recently brought out this device. Those who have to drive in all weathers like a wind shield, but the trouble has always been that in rain, sleet, or snow, when the shield was most required, it had to be let down, for the accumulation of rain or snow made seeing ahead an impossibility with it up, while getting down every few seconds to clean the screen was worse than not having the screen. Messrs. Brown Brothers' cleaner is supplied with a clip for fixing to wind screens with half-round beading, or with a special clip for screens with wood frames, and is operated by a cord fastened to the steering column or dashboard. By its use the steam, rain, or snow is removed and the driver is able to see ahead in all weathers, and, what is more, the glass is cleaned without leaving the seat.

## MEDICINE IN THE ENCYCLOPÆDIA BRITANNICA.

### VI.[1]—STRUCTURE AND MORPHOLOGY.

ANATOMY is well represented in the new issue of the Encyclopædia Britannica, and medical readers will find much to interest them under the various headings. Since the last edition—which was also the ninth—of the Encyclopædia began to appear in 1875 much progress has been made in several special departments of anatomy. Although the scalpel and forceps of the dissector cannot be expected to reveal many new facts in the structure of the human body, our knowledge of comparative anatomy has been substantially increased, and various investigations, partly physiological, partly pathological, have cast fresh light on the functions of several parts of the glandular, alimentary, and central nervous systems. A few changes in anatomical nomenclature have also been introduced of recent years. The

[1] Articles I., II., III., IV., and V. were published in THE LANCET of Feb. 25th (p. 530), March 4th (p. 609), 11th (p. 692), and 25th (p. 828), and April 1st (p. 897), 1911, respectively.

word Coelom, for instance, which received only a brief mention in one of the supplementary volumes of the ninth edition (Vol. XXV., pp. 405, 406), is in the present issue the heading of a long article descriptive of the serous membranes. The subjects selected for the present notice are those dealt with under the headings Alimentary Canal, Blood, Brain, Coelom, Connective Tissues, Ductless Glands, Ear, Eye, Hearing, and Heart.

The description of the several portions of the human alimentary canal (including its embryological development) is similar to that given in the principal modern text-books, the chief alteration of nomenclature being the substitution of the terms iliac colon and pelvic colon for the time-honoured sigmoid flexure. The section on the comparative anatomy of this canal is somewhat longer than the account of it as existing in the human subject, and contains many interesting details relative to the multiple stomachs of certain birds and many mammals, both ruminants and non-ruminants. The adaptation of an animal's intestine to the nature of its food is illustrated by its elongation in herbivorous and piscivorous birds and mammals, whereas it is relatively short in carnivorous mammals as well as in carnivorous and frugivorous birds. Modifications of the colic caeca in various birds and mammals are also described.

The article on the Blood is somewhat diffuse in its style, and is in our opinion considerably disfigured at the outset by a discussion on the conversational vulgarities of the lower strata of the population; this is rather out of place as the preface to an anatomico-medical memoir. The space saved by its omission might have been devoted either to the spectroscopy of the blood or its arterial pressure, both of which attributes are dismissed with a meagre allusion. The occasional introduction of the plural form of blood is rather ungraceful, and we prefer the spelling leukæmia to leucæmia. The paragraph on the pathology of the blood gives a concise account of the theory of immunity and of the opsonic, agglutinative, and precipitin tests. The article on Blood is followed by one on Blood-letting, in which this form of treatment is recommended for certain symptoms, but the author adds with apparent seriousness, "Venesection, in which the blood is usually withdrawn from the median-basilic vein of the arm, has the disadvantage that it can only be performed by the medical man," and then the writer proceeds to recommend that leeches should be applied by the nurse "if occasion arises." As the list of diseases to be treated by leeching includes acute pneumonia, cerebral hæmorrhage, and acute uræmia, we think it hardly fair to the nurse that so much responsibility should be laid on her.

The article on the Brain is in two parts, by different authors, one of whom writes on its anatomy and the other on its physiology as illustrated by motor and reflex phenomena and by manifestations of consciousness. It is of considerable length—perhaps between 40 and 50 columns of THE LANCET, is copiously illustrated, and may be said to form a complete monograph of the subject, not, however, including Neuro-pathology and Insanity, which are dealt with under separate headings. In the section on physiology special interest attaches to the localisation of certain functions, such as those belonging to the olfactory, visual, visuo-psychic, auditory, and pre-central regions of the cortex; one great receptive organ, however, the vestibular labyrinth of the ear, does not appear to have any special region of the cortex assigned to it. Some criticism of the phrenological imaginings of Gall and his disciples is followed as a sort of contrast by a concise general view of modern localisation doctrines and the views on myelinisation associated with the name of Flechsig.

Under Coelom the body cavity is considered with reference to its division into the pericardium, the two pleuræ, the peritoneum, and the two tunicæ vaginales. A description of the various connexions and reflexions of these serous membranes is succeeded by a short account of their embryological development and of the coelom as it is represented in various vertebrates from the amphioxus to the rabbit.

In the article on Connective Tissues these structures are defined as comprising areolar tissue, adipose tissue, reticular or lymphoid tissue, white fibrous tissue, elastic tissue, cartilage, and bone. Areolar tissue is found in its most typical form uniting the skin to the deeper-lying parts, the constituent fibres of each bundle being termed white fibres; reticular tissue consists of white fibres defining interspaces in which the cells typical of the tissue are enclosed, its chief situation being in the lymphatic glands, the liver, and spleen; white fibrous tissue occurs in tendons, ligaments, and the dura mater. The same paragraph contains the description not only of cartilage and bone, but also of the bone marrow and the several forms of muscular fibre. The red marrow of the tubular bones is composed of a number of fat cells lying in a tissue made up of large and small marrow cells and typical giant cells or myeloplaxes. The marrow cells exhibit manifold forms and probably develop into leucocytes. In addition to fully developed red blood corpuscles, there are also present numerous nucleated red blood cells (erythroblasts or hæmatoblasts). These are red blood corpuscles in an early stage of formation. They reach the blood after they have lost their nuclei.

The Ductless Glands are described as glands whose products, known as internal secretions, are carried away, not by a special duct as in ordinary glands, but by the veins or lymphatics which drain them. Among these structures are the spleen, the adrenals, the thyroid gland, the parathyroids, the thymus, the carotid and coccygeal bodies, the lymphatic glands, and the pineal and pituitary bodies in the brain, but this general statement is afterwards qualified by the remark that some consider the carotid and coccygeal bodies to be parts of the sympathetic system. The article would have been improved by the addition of a few words relative to the connexion between certain constitutional disorders and incompetence or hyperactivity of some of these glands.

The article on the Ear commences with a detailed account of its anatomical structure, illustrated with drawings and followed by paragraphs on its embryology and on the auditory apparatus of various creatures, beginning with fish and ascending to man. A page is devoted to an enumeration of diseases and injuries of the ear, methods of examination, the effects of adenoids, and miscellaneous otological information. The transmission of sonorous vibrations from the external ear to the auditory nerve and the physiological characters of auditory sensation are discussed by a different author in a separate article on Hearing. In this section, which treats the subject at considerable length and with adequate fulness, several hypotheses are considered as to the manner in which the ear accomplishes the analysis of compound musical sounds by picking out the partials from the general mass. All authorities are agreed that there is a complicated apparatus in the cochlea which may serve this purpose; but while some are of opinion that this structure is sufficient, others hold that the analysis takes place in the brain. The author of the article justly observes that the parts in the cochlea are so small as to constitute only a fraction of the wave-length of most tones audible to the human ear, and he evidently leans to the hypothesis that there may exist small vibratile bodies between the nerve filaments and the pressures sent into the organ—a hypothesis on which is founded a theory generally accepted and associated with the names of Thomas Young and Hermann Helmholtz. The further development of the subject leads to the more complicated questions of musical intervals, concords and discords, beats, &c.

The article on the Eye commences with an adequate account of its anatomical details, to which are appended paragraphs on its embryology and on the visual organs of the lower animals from the amphioxus upwards. The physiology of the eye and its application as an optical instrument are discussed in a later volume of the Encyclopædia under Vision. About 11 columns are devoted to Eye Diseases, classified according to the structures mainly involved.

The account of the Heart adheres to the usual sequence of anatomical description, embryology, and comparative anatomy. The microscopical appearance of its muscular fibres has been already mentioned and figured as an addendum under the heading Connective Tissues. The recent demonstration of muscular fibres passing from the auricles to the ventricles is noted, as well as a paper on the subject published in THE LANCET in August, 1906. The fibres of this auriculo-ventricular bundle begin in the right auricle below the opening of the coronary sinus, and run forward on the right side of the auricular septum; the fibres then thicken and divide into two main branches and so reach the walls of the ventricle, where their secondary branches form the fibres of Purkinje; the bundle is best seen in the hearts of young

ruminants. The article concludes with a short reference to various forms of heart disease, including pericarditis, endocarditis, valvular disease, dilatation, disorders of rhythm, and conditions requiring surgical treatment.

## NURSING AND MIDWIFERY CONFERENCE.

THE Fourth Annual Conference and Exhibition was held in the Horticultural Hall, Westminster, on four successive days of last week. A brief opening ceremony was conducted by Sir DYCE DUCKWORTH. Dr. MARY THORNE presided over the first session, in which Massage was discussed by Miss MACLEAN, Miss LUCY ROBINSON, Miss HAUGHTON (matron of Guy's Hospital), and others. A point emphasised by several speakers was the need of more systematic communication between the medical man and the masseuse.

### *Mental Nursing.*

At the session dealing with Mental Nursing on Wednesday, Sir JAMES CRICHTON-BROWNE, who presided, gave an address on the development of mental nursing, and the characteristics required in a good mental nurse. Formerly the training, which was almost exclusively carried out in the wards, was desultory and fragmentary. Now the three years' curriculum in an approved asylum and the course of study arranged by the Medico-Psychological Society fitted a nurse to meet any emergency that might arise in the fitful wanderings of the mind diseased. He reminded his hearers that the need of special instruction was recognised and modern methods in some measure anticipated by his father, as shown in a report of the Crichton Royal Institution, Dumfries, for the year 1857. Having secured the right material, the speaker advised that the first stage in the training of the mental nurse should be a practical course of surgical, medical, and general nursing; and he thought it would be an advantageous arrangement if some of our general hospitals would make provison to give one year's training to those proposing to enter asylum service, or if some system of affiliation between hospitals and asylums could be organised. He admitted that at present there was no legal provision for this in England, but the Crichton Royal Institution last year appointed a gentleman at a liberal salary to a Research Fellowship in Clinical Neurology and Psychology, and had maintained him for a year while pursuing special studies at the National and University College Hospitals in London, and at the Royal Psychiatrical Clinic in Munich, under Professor Krapelin, in order that he might bring special skill and knowledge to the duties of his office when he assumed it. The speaker maintained that although Germany might be ahead of us as regards research work and hospital clinics with out-patient departments, in no other respect need we fear comparison with other countries. Speaking a warning note on the teaching of psychology, he recommended for asylum use that Scottish philosophy of common sense which, originating with Hutcheson and Reid, had swayed the current of speculative thought, and was to be found infused in comparatively recent writings, such as those of Rosinini.

Dr. ROBERT JONES, medical superintendent of Claybury Asylum, contributed a paper which, in dealing with the subject of mental nursing, was a retrospect and a prospect. Its importance, he said, must be evident when it was known that approximately in some capacity or other 20,000 persons were engaged in the care of the mentally afflicted in the British Isles alone. The average number of attendants and nurses in the asylums of England and Wales, as given by the Commissioners in Lunacy, was 10,000. No greater progress had taken place in sick nursing than in our large mental hospitals. A hundred years ago the Bicêtre was one vast pandemonium filled with miserable creatures, some insane, some criminals; and so was our own Bedlam. King George III., during his recurrent attacks of insanity, was said to have been knocked down by his attendants "as flat as a flounder." The Bethlem Royal Hospital was open on Sundays, like the Zoo, for visitors to inspect the patients in strait waistcoats, handcuffed or roped to the floor, bedded in dark cells with straw to lie on like cattle, and flogged for their excitement by keepers, who were persons of the lowest class, and often criminals themselves. Medical treatment was equally barbarous, being limited to routine blood-letting, purging, blistering, or starvation, varied by surprise-baths, the patients being dropped through a trap-door into a deep well, or placed there until the water rose so high that death by drowning was impending. It was recorded that in one year alone £400 were received by sightseers at this hospital. Contrasting this with the pleasant well-appointed wards and grounds of the modern mental hospital, Dr. Jones was careful not to omit mention of the well-equipped laboratories for the study of insanity which helped to the solution and the understanding of mental diseases. The value of work as a discipline for patients was regaining popularity. Given a certain task, attention was necessary to comprehend its nature, and an effort was made to carry it out. The stimulus of effort liberated energy in the neurones, which passed out as muscular movement. The effect of this process of transmission of energy drained the energy of other neurones, and thus unhealthy, abnormal, or morbid ideas were drained away from their prominent positions. The difference between past and present treatment was due to our new conception of insanity as an illness, not as demoniacal possession. To-day we recognised the definite association between mind and body, and we knew that the activity of the brain cells was a matter of rhythm, and that sleep was an absolute necessity. Enumerating the various kinds of mental disease and their distinguishing features, the speaker said that certain qualities were absolutely necessary to a good mental nurse, and among these he included good health, which implied buoyancy of spirits, freedom from irritability, and self-reliance. An orderly mind was also an important asset; obedience to authority was essential both in nurse and medical man, for every insane person was under strict supervision, and contravention of rules and regulations was attended with severe penalties.

### *District Nursing and Midwifery.*

Sir FRANCIS CHAMPNEYS presided over this section, when Miss AMY HUGHES, general superintendent of Queen Victoria's Jubilee Institute for Nurses, read a paper on District Nursing and showed how much it had been affected by recent legislative measures such as the Midwives Act, the Children Act, and the Medical Inspection of School Children. Papers were also read by Mrs. LAWSON and Mrs. STEPHEN GLANVILLE on the Midwives Act and the Present Condition of the Midwifery Profession in England. A spirited discussion followed.

### *Eugenics.*

In dealing with the question, "Can Race Degeneration be Arrested by Eugenics?" Dr. R. MURRAY LESLIE discussed the different opinions and evidences of race degeneration in England, and stated that the new science formulated by the late Sir Francis Galton promised fair to strike at its roots and restore our race and nation to its pristine power and vigour. The eugenist believed that heredity was far stronger than environment, that such questions as voluntary or involuntary celibacy, the age of marriage, the responsibility of lactation, the roll of venereal disease, the artificial limitation of offspring, were of infinitely greater value than mere matters of comfort and well-being.—Professor KARL PEARSON stated that the central problem of all practical eugenics was to make the well-born child a valuable economic asset instead of, as now, an encumbrance and a handicap. Negative eugenics would prevent all unfit persons from marrying and propagating their like, while positive eugenics dealt with all conditions and influences which make it possible for the fittest men and women to come together, so that the race may be built up from the best possible materials. Speaking of the danger of allowing people with hereditary taint of insanity to marry, the speaker said it had been shown conclusively by Dr. Tredgold and Dr. Ettie Sayer that the feeble-minded were actually more fertile than the general population. Segregation was the only means of preventing a continuance of such mental degenerates. To the eugenist the marriage of infective or diseased persons was a greater crime than the birth of illegitimate children of healthy parents. In the State of California laws were being enacted to prohibit the issuing of marriage licences to epileptics, lunatics, victims of the drug habit, confirmed inebriates, and the feeble-minded. In conclusion, he suggested that medical examination should be carried out and a certificate of health presented by both parties before marriage.

### *The Care of the Nervous.*

The Care of the Nervous formed the subject of a paper by Dr. EDWIN ASH, who said that the growth of nervous

disorders among us was a serious question of the present day. Irritability and bad temper were symptoms of disease often causing much disturbance in the domestic life. Many difficulties now referred to the police or the divorce court might be better settled in the consulting-room of the physician. Dr. Ash gave a great deal of sound practical advice to nurses as to the best methods of dealing with nerve cases, and insisted that in order to avoid becoming the victim herself of unhealthy suggestions emanating from the patient, she must keep herself in good health and take a proper amount of rest and recreation.

*Septic Mouths of Our Present-Day Children.*

Mr. GEORGE THOMSON, in a lecture illustrated by lantern slides, said that the teeth more than any other structure of the human body marked the history of the individual from the earliest period of life. He emphasised the importance of the feeding of infants from the very first, and referred to the high rate of mortality both in this country and also in India, where the feeding bottle had been introduced. Referring to the period between 6 and 13 years of age he showed that 80 per cent. of the children in our Government schools when 12 years old were deficient in masticating powers; 600,000 school children at the present time needed immediate attention to their teeth; and he had examined schools where he had not been able to find one single child with sound teeth. He stated that an improvement in diet would be more beneficial to the preservation of the teeth than the cult of the toothbrush, and recommended the use of coarse and fibrous foods which were at present almost entirely banished from the diet of civilised life.

## ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

A QUARTERLY meeting of the Council was held on April 6th, Mr. BUTLIN, the President, being in the chair.

On the recommendation of the Museum Committee, Mr. H. C. Wilson was appointed assistant prosector.

The President was authorised to purchase nine Bushmen skeletons and six Ainu crania.

A vote of thanks was given to Mr. Frank Corner, M.R.C.S., for his gifts to the Museum and for his services in helping the conservator to acquire specimens.

On the recommendation of the Jacksonian Committee, the Jacksonian prize for the year 1910 was adjudged to the author of the dissertation on "Tuberculous Disease of the Urinary Bladder and Male Genital Organs," bearing the motto, "Saepe stilum vertas iterum quae digna legi sint scripturus." The President having opened the envelope bearing this motto disclosed the name of Mr. K. Macfarlane Walker of St. Bartholomew's Hospital, and it was resolved to request that gentleman to attend the ordinary meeting of the Council on May 11th to receive the Jacksonian prize.

On the recommendation of the Jacksonian Committee, it was resolved that the subject for the Jacksonian prize for the year 1912 should be "The Embryology and Treatment of Cleft Palate."

On the recommendation of the Walker Prize Committee, the prize of £100 was awarded to Dr. Ernest Francis Bashford, and he was requested to attend the ordinary meeting of the Council on May 11th to receive the Walker prize. The Walker Prize Committee drew attention—(1) to the actual amount of work carried out during the past five years under Dr. Bashford's direction; (2) to its systematic character; and (3) to its far-reaching extent, in that it has critically tested all the questions relating to the pathogenesis of cancer as they have arisen during this period. Many important results confirming or materially extending the work of other observers have also been obtained. Among these may particularly be mentioned the following observations upon mouse-cancer:—

"1906–07.—The prophylactic immunisation against tumour grafting produced by the injection of normal mouse blood—an effect due to the blood cells, not to the serum. This result indicated that the immunisation which had been produced by other investigators by means of tumour inoculation was not to be explained by the presence of a virus in the material inoculated. The prophylactic immunisation produced by fœtal mouse skin, especially against the growth of squamous-celled carcinoma. That this effect could be obtained by emulsion of the entire embryo had already been shown by others, but no analysis of the tissues causing it had been made.

1908.—The nature of the immunity reaction. It was shown: (*a*) That in the mouse immunised by means of tumour material or by means of mouse-skin, the tumour cells of the graft die; and that no organising reaction of the stroma of the host is set up. (*b*) That the failure of mouse carcinoma to grow in the rat is due to the production of a cytotoxin in the host. (*c*) That a hypersensibility to the growth of ingrafted cancer was induced by the treatment of an animal with tissues belonging to another species; and further, that the same result followed treatment with tissues of animals of the same species provided a sufficient interval elapsed. (*d*) That the milk of an immunised mouse did not protect the sucklings against the inoculation of the tumour with which the mother was immunised, or of other tumours.

1909.—The following points have also been established: (*a*) That spontaneous tumours, although they can be grafted readily into the same mouse, can only be grafted with difficulty upon mice affected with other spontaneous tumours. (*b*) That the method of prophylactic immunisation referred to failed to counteract the growth of spontaneously growing tumours, whether of the same or of a different histological kind. (*c*) That no prophylactic immunisation is brought about by killed cancer cells or by these mechanically disintegrated.

Lastly may be mentioned the valuable assistance which Dr. Bashford has given to investigators, whether foreign or British, outside the laboratory of which he has charge, by the unreserved manner in which he has placed material at their disposal."

On the recommendation of the Cartwright Prize Committee the Cartwright prize for the period 1906–1910 was awarded to Mr. H. Percy Pickerill, M.B. Birm., L.D.S.R.C.S. Eng., professor of dentistry and director of the Dental School of the University of Otago. The subject of the essay was the Prevention of Dental Caries, and the prize consisted of the Cartwright medal in bronze and an honorarium of £70.

On the recommendation of the Cartwright Prize Committee the following subject was chosen for the five years ending Dec. 31st, 1915: Oral Sepsis as a Factor in the Causation of General and Local Disease.

Sir Alfred Pearce Gould was re-elected a Member of the Senate of the University of London for the four years ending May, 1915.

## CENTRAL MIDWIVES BOARD.

A SPECIAL meeting of the Central Midwives Board was held on March 30th at Caxton House, Westminster, with Sir FRANCIS H. CHAMPNEYS in the chair. The Board considered the following charges amongst others against the midwives whose names are given below and ordered them to be struck off the roll. Annie Birchley, that being in attendance as a midwife at a confinement, the patient suffering from rigors, abdominal pain, and vomiting, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (4). Also that she had habitually attended women in childbirth while suffering from severe septic ulceration of the leg, though she had been previously warned and was well aware of the danger involved to her patients thereby. Lucy Bowpitt, that being in attendance as a midwife at a confinement, the placenta and membranes not having been completely expelled two hours after the birth of the child, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (3); that she never took the temperature of her patients, being unable to use a clinical thermometer. Emma Susanna

Down, that in contravention of Section 1 (4) of the Midwives Act, 1902, she had habitually employed an uncertified person as her substitute; that she had habitually aided and abetted the said substitute to contravene the provisions of Section 1 (2) of the Midwives Act by colourably and falsely pretending that the cases attended by the substitute were cases undertaken and conducted by her; and that she colourably and falsely notified to the medical officer of health for Kensington the occurrence of certain births as having been attended by her, whereas in fact she was on no occasion in attendance at the birth. Eliza Eagle, that she was uncleanly in her person, and her nails were long and dirty, contrary to Rule E. 1; that when attending a confinement she did not wear a dress of washable material, as required by Rule E. 1; that she did not possess the appliances and antiseptics required by Rule E. 2; and that she did not take the temperature of her patients, being unable to use a clinical thermometer. Emma Goodwin, that being in attendance as a midwife at a confinement, the patient suffering from excessive bleeding after delivery, with vomiting and diarrhœa, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (3). Alice Hamson, that being in attendance as a midwife at a confinement, she attempted to remove the placenta by forcible traction on the cord; that the placenta and membranes not having been completely expelled two hours after the birth of the child, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (3); and that she left the patient before the expulsion of the placenta, contrary to Rule E. 6. Sarah Ann Hankins, that she did not possess the appliances and antiseptics required by Rule E. 2; that she laid out the dead for burial contrary to Rule E. 16; that she did not keep a register of cases as required by Rule E. 22; and that she did not take the temperature of her patients, being unable to use a clinical thermometer. Annie Ireland, that being in attendance as a midwife at a confinement, the child suffering from inflammation of the eyes, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (5). Mary Lee, that being in attendance as a midwife at a confinement, the patient being ill and suffering from rigor, she did not take the patient's temperature, nor did she explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 18. Fanny Mason, that being in attendance as a midwife at a confinement, the patient being ill, suffering from diarrhœa before and after the delivery, and subsequently from pneumonia and fever, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 18; that she did not take the patient's temperature at any time; that the child having died before the attendance of a registered medical practitioner, she failed to notify the fact to the local supervising authority, as required by Rule E. 20. Elizabeth Ann Shaw, that being in attendance as a midwife at a confinement, the patient suffering from excessive bleeding, and the placenta and membranes not having been completely expelled two hours after the birth of the child, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (3); that she inserted her hand into the patient's uterus and peeled away the placenta. Ann Whittaker, that having been engaged to attend as a midwife at a confinement, the patient suffering from loss of blood, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (2). Maria Wigley, that being in attendance as a midwife at a confinement and having advised that a registered medical practitioner should be sent for on account of the inflamed condition of the patient's breasts, she failed to notify the fact to the local supervising authority as required by Rule E. 20. Rebecca Taylor, whose case had been adjourned for judgment on the report of the local supervising authority, was also struck off the roll.

The following midwives were censured after charges against them had been considered: Sarah Johnson, Fanny Royle, Mary Jane Cousins, and Elizabeth Williams.

## THE SERVICES.

### ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel William Dick is placed on retired pay (dated April 6th, 1911). Major Arthur O. B. Wroughton is placed temporarily on the half-pay list on account of ill-health (dated March 20th, 1911). Captain Ernest G. Ford retires, receiving a gratuity (dated April 8th, 1911).

Colonel R. H. Forman, principal medical officer of the Bombay Brigade, has arrived home on leave of absence from India. Lieutenant-Colonel C. W. Johnson, from Bulford Camp, Salisbury Plain, has taken over charge of the Military Hospital at Cosham. Lieutenant-Colonel W. B. Thomson, commanding the Station Hospital at Calcutta, has arrived home from India. Lieutenant-Colonel R. P. Bond, officer commanding the Tenth Company of the Royal Army Medical Corps at Chatham, has taken over the duties of the newly created appointment of Senior Medical Officer of the Eastern Coast Defences. Major S. F. Clark, on return from South Africa, has been posted to Chester and appointed Specialist Sanitary Officer to the Western Command. Major R. F. E. Austin has taken up duty as Specialist in Laryngology to the Third (Lahore) Division, Northern Army, India. Major J. D. Alexander has been appointed to command the Station Hospital at Thayetmyo, Burma. Major J. G. Gill, specialist in ophthalmology to the First (Peshawar) Division, has been transferred from Cherat to Peshawar. Major N. J. C. Rutherford, from Harrismith, has joined the Military Hospital at Wynberg for duty. Captain J. T. Johnson, from Newcastle, has embarked for a tour of service in India. Captain W. G. Maydon has been posted for duty to the Scottish Command. Captain W. K. Beamen, on return from leave, has been appointed to Forrest, Malta. Captain W. R. P. Goodwin, from Woolwich, has on arrival in India, been detailed for duty at the Station Hospital, Fyzabad. Captain H. E. M. Douglas, V.C., D.S.O., has left Woolwich and taken up duty at the Queen Alexandra Military Hospital, Millbank. Captain A. Fortescue, in medical charge of the Military Harness and Saddle Factory at Cawnpore, has been granted four months' general leave of absence. Captain A. B. Smallman, on completion of a tour of service in India, has been posted to the Colchester District. Captain R. E. Humfrey has been transferred from Ferozopore to Nasirabad. Captain J. H. Campbell has arrived home from India. His Majesty the King has granted permission to Captain R. B. Black to wear the Order of the Osmanieh (Fourth Class) granted by the Khedive of Egypt in recognition of valuable services rendered by this officer. Captain E. C. Phelan, from Calcutta, has taken up duty at the Station Hospital, Lebong. Captain J. P. Lynch, from Canterbury, has joined at Lydd. Captain J. H. Gurley, from Woolwich,

has been posted to Kingston-on-Thames. Lieutenant W. H. S. Burney, on arrival for duty in Ireland, has been appointed to the Dublin District. Lieutenant V. B. Hutchinson, from the London District, has joined the Southern Command. Lieutenant A. P. O'Connor has been transferred from Shorncliffe Military Hospital to Brighton for duty.

### INDIAN MEDICAL SERVICE.

Surgeon-General H. W. Stevenson, Bombay Presidency, has been granted six months' leave of absence home from India. Lieutenant-Colonel F. J. Dewes has taken up duty at Maymyo. Major P. Dee, at present on furlough, has been granted an extension of leave on medical certificate. Major E. L. Perry has been placed on special duty under the Department of the Sanitary Commissioner with the Government of India. Major T. B. Kelly has been granted leave of absence from India until July 12th next. Major J. M. Woolley has been selected to succeed Lieutenant-Colonel C. Fearnside as Senior Medical Officer at Fort Blair. Captain H. B. Scott has been appointed Special Plague Medical Officer of the Meiktila Division, Burma. Captain N. E. H. Scott, Bombay, has received an extension of his leave of absence from the Secretary of State for India. Captain D. Heron and Captain H. W. Pierpoint have arrived home on leave. The Chief Commissioner of the Central Provinces has appointed Captain M. F. Reaney, officiating civil surgeon at Wardha, to the executive and medical charge of the Wardha District Jail. Captain W. W. Jeudwine, officiating civil surgeon at Rawalpindi, has been transferred to Lahore and attached to the staff of the Mayo Hospital. The services of Captain A. W. M. Harvey have been placed at the disposal of the Government of India for civil employment in Bengal. Captain W. R. J. Scroggie has taken up the appointment of Officiating Civil Surgeon at Coorg. Captain C. R. O'Brien has had his appointment as Civil Surgeon to the Eastern Bengal and Assam Provinces confirmed by the Government of India. Captain D. H. F. Cowin has relinquished the duties of superintendent of the Dera Ghazi Khan District Jail. Captain F. E. Wilson, officiating agency surgeon of the second class, has been appointed Agency Surgeon at Meshed, and *ex-officio* Assistant to His Britannic Majesty's Consul-General and Agent to the Government of India in Khorasan. Lieutenant M. J. Holgate has relinquished the duties of officiating civil surgeon at Ahmednagar.

### SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps: Robert Howard Nolan to be Lieutenant (on probation) (dated March 7th, 1911). William Biden to be Lieutenant (on probation) (dated March 31st, 1910).

### TERRITORIAL FORCE.

*Royal Army Medical Corps.*

1st Northumberland Field Ambulance, Royal Army Medical Corps: Lieutenant William Thomas Harkness, from the List of Officers attached to Units other than Medical Units, to be Lieutenant (dated March 1st, 1911).

*Attached to Units other than Medical Units.*—Lieutenant Samuel English to be Captain (dated Sept. 30th, 1910). Captain James S. Swain to be Major (dated Oct. 23rd, 1910). Captain Albert Ehrmann to be Major (dated Jan. 9th, 1911). Hugh Lennox Munro to be Lieutenant (dated March 1st, 1911).

*For Attachment to Units other than Medical Units.*—Richard Patrick Ryan (late Lieutenant, 2nd (Prince of Wales's) Volunteer Battalion, The Devonshire Regiment) to be Lieutenant (dated Feb. 1st, 1911). Captain Alexander Weatherhead French, from the Yorkshire Mounted Brigade Field Ambulance, Royal Army Medical Corps, to be Captain (dated March 15th, 1911).

### INDIAN MEDICAL SERVICE: STUDY LEAVE REGULATIONS.

Discussing the recently issued regulations for the grant of study leave to officers of the Indian Medical Service, the *Indian Medical Gazette* says:—

The matter of study leave has been largely mixed up with that of accelerated promotion. We are not particularly in favour of the system of accelerated promotion; but undoubtedly the new rules whereby a junior officer can qualify for and become eligible to be selected for accelerated promotion is a great advantage for which the service is indebted to the Director-General. Hitherto it not infrequently happened that for various reasons an officer was not able to take leave in the three or four years before his promotion to major was due, and was consequently unable to take the special courses or diplomas, &c., which would have rendered him eligible. Thus, for no fault of his own, such an officer might find himself superseded by men originally below him on the list. The new regulations permit such an officer to qualify or become eligible at any period for four years after the due date of his promotion to a majority. This is very liberal, and the man who cannot take leave and qualify before the end of his sixteenth year of service must be rare indeed.

There is another matter in connexion with this matter of study leave which is well worth the consideration of the Government of India. It is the difficulty of getting ordinary leave home after three, four, or five years' service since last furlough. Owing to privilege leave, study leave, and furlough being now taken usually all together, men, and especially the younger men, take long spells of leave for 18, 20, or 24 months; the result is that the turn for leave does not come round as quickly as in the former days when a majority of men were content with eight or ten months' leave or more rarely 18 months, so as to escape two hot weathers. The result is that administrative officers find themselves confronted with applications from men with five or six years' continuous service since last leave, and they cannot grant this leave because the permitted number of men are already on leave and are not returning as quickly to duty as in the days before study leave was introduced.

Study leave has been a great boon to the service; it is for the benefit of the public and the State that men in responsible positions should qualify themselves and become well acquainted with the latest developments of medical science, but the fact remains that it retards leave, and this should, we hold, be met with by an increase in the total number admitted to leave of absence at any one period, or by counting men while on "study leave" on a different roster from men on the ordinary leave, which is so necessary to health and good work in this climate.

### THE COURSE OF INSTRUCTION AT HASLAR.

The course of instruction of the newly-entered acting-surgeons at Haslar was brought to a close on April 4th by the distribution of the prizes by Inspector-General T. D. Gimlette, R.N. The gold medal was gained by Acting-Surgeon S. W. Grimwade, M.B., of St. Thomas's Hospital. The silver medal was awarded to Acting-Surgeon H. E. Perkins of Guy's Hospital. These officers took the first and second places in the combined London and Haslar examinations. Three Navy regulation pocket cases—prizes for subjects in which instruction is given at Haslar—were awarded to Acting-Surgeon Grimwade, Acting-Surgeon Alexander Scott, and Acting-Surgeon Basil Taylor. The following list of Acting-Surgeons shows the places gained by the combined marks of the London and Haslar examinations:—

| | Marks. | | Marks. |
|---|---|---|---|
| S. W. Grimwade ... ... | 3715 | J. G. Danson ... ... ... | 3205 |
| H. E. Perkins ... ... ... | 3692 | G. J. Carr ... ... ... ... | 3177 |
| A. Scott ... ... ... ... | 3643 | H. H. Ormsby ... ... | 3146 |
| B. Taylor ... ... ... ... | 3479 | E. M. Browne ... ... ... | 3008 |
| E. C. Holton ... ... ... | 3347 | A. E. P. Cheesman ... | 2885 |
| C. F. Willes ... ... ... | 3310 | | |

### THE ROYAL VISIT TO INDIA.

Lieutenant-Colonel Sir R. Havelock Charles, late I.M.S., serjeant-surgeon to the King, who was the principal medical officer of the staff of the King and Queen when as Prince and Princess of Wales Their Majesties visited India in 1905–06, will accompany the King and Queen on their forthcoming visit to India in a similar capacity.

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FOREIGN UNIVERSITY INTELLIGENCE.—*Athens:* A lady, Mademoiselle Panagistatou, was recently accepted by the University authorities as Extramural Lecturer, and gave as her introductory lecture an account of some points connected with infectious diseases. Notwithstanding the presence of the Prime Minister, the President, Dr. Veniselos, and the Minister of Justice, some of the students made a great disturbance. The lady, however, remained perfectly calm, and at the end was congratulated by the Prime Minister and members of the University Senate, this being the first occasion on which a lady has been recognised as a university teacher.—*Berlin:* Dr. Theobald Smith, Professor of Pathology in Harvard University, has been appointed to a Professorship.—*Florence:* Dr. Pasquale Clementi has been recognised as *privat-docent* of General Pathology.—*Gratz:* Dr. Günther von Saar has been recognised as *privat-docent* of Surgery.—*Jena:* Dr. E. Frey, *privat-docent* of Pharmacology and Toxicology, has been appointed Extraordinary Professor.—*Kiel:* Dr. Karl Stargardt has been granted the title of Professor. Dr. Artur Böhme has been recognised as *privat-docent* of Medicine.—*Rostock:* Dr. H. Winterstein, Extraordinary Professor of Physiology, has been appointed to the chair vacated by the death of Professor Nagel, whose duties he performed during the late professor's long illness.—*St. Petersburg (Military Medical Academy):* Dr. S. Poggenpohl has been recognised as *privat-docent* of Medicine.—*Turin:* Dr. Ernesto Lugaro, Professor of Neurology and Psychiatry in the Modena Medical School, has been appointed to the chair of Clinical Psychiatry.

# Correspondence.

"Audi alteram partem."

## CHARLES BELL AND THE MOTOR AND SENSORY FUNCTIONS OF THE SPINAL NERVES.

*To the Editor of* THE LANCET.

SIR,—Apart from the side issues into which this correspondence has become diverted, the main question is whether Bell or Magendie discovered the motor and sensory functions of the anterior and posterior roots of the spinal nerves. Professor Keith maintains that the discovery was Bell's, and Professor Waller is equally certain that it was Magendie's. I am inclined to side with Professor Waller on the ground that Professor Keith has not brought forward a single quotation from Bell's earlier works (i.e., written before 1822) in which he distinctly stated that the function of the anterior roots is motor, and that of the posterior roots is sensory, whereas Magendie in 1822 said with no ambiguity that "the anterior roots are destined to motion, whilst the posterior belong more especially to sensation."

Professor Keith bases Bell's claim to priority chiefly on the two experiments described in Bell's letter to his brother George (March 12th, 1810):—

*Experiment 1.*—I opened the spine and pricked and injured the posterior filaments of the nerves—no motion of the muscles followed. I then touched the *anterior* division—immediately the parts were convulsed.

*Experiment 2.*—I now destroyed the posterior part of the spinal marrow by the point of a needle—no convulsive movement followed. I injured the anterior part and the animal was convulsed. *It is almost superfluous to say that the part of the spinal marrow having sensibility comes from the cerebrum; the posterior and insensible part of the marrow belongs to the cerebellum.*

The words which I have italicised, in their literal sense can only mean that Bell regarded the convulsions produced by irritation of the anterior columns and roots as evidence of sensibility, and the absence of convulsions on irritating the posterior columns and roots as evidence of insensibility. He failed to observe, as Magendie did, that irritation of the posterior roots or columns produces *pain* as well as slight movements. Indeed, the only inference which Bell drew from his experiments on the posterior roots was wrong, for he said to his brother, "Is it not most curious that ..... a nerve should be insensible?"

Professor Keith attempts to get over the difficulty by assuming that by "sensible" Bell meant "motor," and by "insensible" he meant "sensory." I cannot conceive how Bell could use the terms "insensible" and "sensory" as synonymous, and it is certain that in his later writings, at all events, he drew a distinction between the columns of "sensibility" and those of "motion." For in the third edition (not the first) of his paper on the Structure and Functions of the Nerves, p. 48, he says of the fifth cranial nerve:—"It alone of all the nerves of the head receives roots both from the column of sensibility and from that of motion." Moreover, even in 1811 he spoke of "Nerves of motion," "Nerves of touch," and "Nerves of peculiar sensibility." Obviously, he did not regard the terms "motion" and "sensibility" as convertible, and if he had recognised that the function of the anterior columns and roots is chiefly motor, he would not have described them as "having sensibility." If, again, he had recognised that pain is produced by irritating the posterior columns and roots, he would not have called those parts "insensible." The only fact which his experiments taught him was that irritation of the anterior roots produces convulsions in the parts which the nerves supply, and this he interpreted wrongly, whilst his conclusion that the posterior roots and columns are "insensible" was entirely erroneous.

I regret to say so, but it was not until after Magendie's work appeared that the wording of later editions of Bell's writings was so modified as to bear the construction that he anticipated Magendie. For instance, in the third edition of his paper on the Structure and Functions of Nerves, the words "column of sensibility and that of motion" replace "the medullary process of the cerebrum and cerebellum" which appeared in the first edition. Again, in his account of the experiment on the stunned rabbit written in 1824—two years after Magendie's epoch-making discovery—he for the first time speaks of "a sensitive" and of a "motor" nerve, meaning the posterior and anterior roots respectively. In his descriptions of a similar experiment which he related to his brother in 1810 and printed in his "Idea of a New Anatomy of the Brain" in 1811, the expressions "sensitive" and "motor" are not applied to either of the spinal roots. The only matter in which Bell anticipated Magendie was in devising the experiment of dividing the spinal roots. Magendie discovered their functions by doing so, Bell did not.

I am, Sir, yours faithfully,

LEONARD GUTHRIE.

Upper Berkeley-street, W., April 8th, 1911.

## THE OLIVER-SHARPEY LECTURES ON HEART FAILURE.

*To the Editor of* THE LANCET.

SIR,—Dr. James Mackenzie's work on heart disease is admittedly of great interest, but his strictures on what he is pleased to regard as the prevailing ignorance on the subject show an imperfect acquaintance with the writings of those he criticises. In particular he singles out the late Dr. G. W. Balfour as one who regarded all heart murmurs as of serious importance, yet Dr. Balfour wrote[1]: "Of all the signs of cardiac disease murmurs are those most usually confided in, and yet they are really those of least value"; and although he sought quite properly to find an organic cause for the so-called hæmic murmurs, he did not exaggerate their gravity or dispute their curability; he only expressed doubt as to the possibility of in all cases recognising the extent, or the reverse, of the organic change and the degree to which cure was possible, and Cases 21 and 22 are given as examples of rough murmurs for which no organic explanation could be found in the post-mortem room (p. 235). After referring to the disappearance of murmurs of organic origin, he says that "many murmurs apparently due to an incurable lesion may actually depend upon lesions which are perfectly curable, and in which therefore the murmur may not only vanish but the heart itself become perfectly rehabilitated." Nor was the benignity of irregularity of the pulse unknown before Dr. James Mackenzie appeared on the scene, as is shown by the story, related on page 255, of Dr. Mathew Baillie, who being consulted by a patient with an extremely irregular pulse was pressed to give a reason for its occurrence. He replied: "I do not know what is its cause, but I can tell you this, it will not shorten your days"; the patient was forced to content himself with this opinion and lived to prove its truth, for he died at a very advanced age many years subsequently.

Respect for the memory of a former teacher and a vivid recollection of the general tenour of what he taught have moved me to make this protest, but surely Dr. Balfour was not the only one to hold these views. The well-known story of Gull telling the practitioner that it was as well he had not discovered the murmur or he "might have treated it" illustrates Gull's view, and the general appreciation of the joke is also some evidence that the profession agreed with him. Walshe admitted that there might be temporary heart murmurs which were neither hæmic nor organic, and he says: "It is indisputable that persons are frequently encountered whose health is excellent, though their heart's action is more or less constantly irregular."[2]

I am, Sir, yours faithfully,

Birmingham, April 8th, 1911. ROBERT SAUNDBY.

## THE LATE SURGEON-GENERAL MARSTON.

*To the Editor of* THE LANCET.

SIR,—In reading Surgeon-General Marston's obituary published to-day it occurred to me that, apart from the great amount of administrative and routine work there described, he had the merit of being one of the first to give a satisfactory clinical account of Malta fever. This was some time about 1860, when he had been only a few years in the army. On one occasion when I mentioned this to him he remarked that his paper on the subject had been printed as an official

[1] See Diseases of the Heart, second edition, p. 35.
[2] Ibid., fourth edition, p. 163.

publication. In 1854, previous to entering the army, he contributed to THE LANCET a note upon cholera in Newcastle.

I am, Sir, yours faithfully,

Fulham, S.W., April 8th, 1911. P. H. MACKELLAR.

*To the Editor of* THE LANCET.

SIR,—The late Surgeon-General Marston was a many-sided man, hence it is I am not so much surprised to find no reference in his obituary notice to one piece of his work which has borne rich fruit. In the Army Medical Report for 1861 is a paper of his on the fevers of Malta, dividing them into simple continued, typhoid, and gastric remittent, this last being the first discrimination of the now well-known Malta fever. This paper was in old days a classic at Malta, and was for long, indeed I think till Sir David Bruce's paper in 1889, the only available and detailed account of the disease, on which it focussed the attention which in the course of years has freed us from this scourge.

I am, Sir, yours faithfully,

April 8th, 1911. W. E. H.

## THE GUELPA TREATMENT OF DIABETES, GOUT, RHEUMATISM, AND OTHER AUTO-INTOXICATIONS, AND ITS IMPORTANCE FROM AN INSURANCE POINT OF VIEW.

*To the Editor of* THE LANCET.

SIR,—More than 20 years ago, when Succi was undergoing a 40 days' fast, I observed that a chronic lacrymal ulcer, with which he was troubled, cicatrised completely during his abstinence, and I prophesied at the time (in THE LANCET) that fasting was likely to become a recognised remedy in the near future. This prophecy was not realised. As so often happens, abstinence from food was taken up as a fad by empirics, proposed as a panacea for all diseases, and has therefore been neglected to some extent in the class of cases for which it might really prove useful.

It may be said, also, that prolonged fasting alone, when accompanied by the retention of auto-intoxicative material, often gives rise to fatigue and distress. Old physicians were in the habit of counselling diet on the days when they purged, but applying recent ideas on the rôle of toxins, Guelpa has reversed this proposition, and has shown, not that it is necessary to restrict food after purging, but that it is important to purge freely and continuously when abstaining from food. With this precaution, abstinence can, when necessary, be prolonged for a considerable time, and in one case in the writer's practice, a fast of three days, which had been prescribed for a lady over 80 years of age for enteritis and eczema, was continued voluntarily for a week.

The first point that has been brought out by Dr. Guelpa, and one the importance of which has not yet been recognised in the insurance world, is the fact that by the treatment in question sugar can be made to disappear absolutely and certainly from the urine. In cases recorded by Guelpa as much as 500, 700, and even 1200 grammes of sugar were being excreted daily in young subjects with unmistakeable diabetes, notwithstanding which no trace of glucose was to be found after a few days' treatment. It may be objected that a return to an ordinary diet will cause a return of sugar, but when it does return it is in very decreased quantities, a great improvement takes place in the general health, and the moral satisfaction of being able to suppress the sugar at will is immense. Two years ago I published the case of a gentleman, 63 years of age, whose daily excretion amounted to 90 grammes. He passed his time trying one after another different advertised specifics for diabetes without result. The fasting-purging treatment was carried out, the sugar disappearing entirely. It recurs under an ordinary diet, but has never exceeded one-third of the original amount, and can always be arrested at will in 24 hours by restricted diet without absolute fasting.

Dr. Guelpa has published a case where amputation of the foot was about to be performed for diabetic gangrene. The patient was albuminuric at the same time as diabetic. A few days' treatment caused the disappearance of all the symptoms. Dr. Pillet of Niort has given me details of the following cases treated by him at my suggestion. The first, a patient 63 years of age, had taken morphia for 25 years. Sixteen years previously the morphia had been stopped compulsorily, but at the cost of the most intolerable suffering. A few years later he relapsed, but was weaned by me at the end of last year in three weeks without constraint or suffering. Somewhat fond of the table, he had not been as abstemious with respect to food as I had advised, and a month after suppression it was found that there was a return of glycosuria, from which he had previously suffered, to the extent of 58 grammes per litre. A fortnight's *régime* improved matters considerably, but it was impossible to get the sugar below 1 per cent. (10 grammes per litre). The fasting-purging treatment caused its total disappearance in three days. In giving these details Dr. Pillet forwarded me notes of a case of diabetic gangrene of the foot with ulceration, characteristic smell, and œdema. The father and mother of this patient had both died from diabetes. All the symptoms cleared up upon the application of the treatment.

Dr. A. A. Warden of Paris has also given me particulars of two cases treated by him. In the first the diagnosis lay between appendicitis and right-sided salpingitis. There was great sensitiveness in the right iliac fossa, so great that examination could not delimit the Fallopian tube. Pulse 100; temperature 99·6° F. A distinguished surgeon diagnosed salpingitis and appendicitis, recommended prolonged rest, hot douches, and spoke of the possible necessity of an operation. Three days of fasting and purging sufficed for a cure. The second case was that of a girl, aged 25 years, who had been treated in London by several specialists from August, 1910, to February, 1911, the sugar varying between 10 and 2 per cent. In three days it had disappeared entirely, the specific gravity of the urine falling from 1042 to 1025, and later to 1010. This girl has gained weight under the fasting treatment.

I will add a last case. A few weeks ago I saw a dentist who is a perfect martyr to all kinds of arthritic manifestations, sometimes localised in the foot, at other times in other articulations. He is affected also with mitral disease of the heart. At the time of my visit he was suffering from what he termed rheumatic arthritis of the right hand, which entirely prevented him fulfilling his professional duties. He had been taking morphia, which he bore badly, for six or eight months, and his patients in view of his continual illness were beginning to suspect that there was something wrong. I was able to persuade him to try the fasting-purging method, which he commenced upon a Saturday morning. The following Monday his hand was normal and he had been able to decrease the morphia to half the quantity he had been taking. Many much more probant cases, particularly of the cure of long-standing rheumatism, gout, and enteritis, will be found in Dr. Guelpa's work,[1] and also in his communication at the last meeting of the British Medical Association. I have seen many of his cases and can vouch for his results, which have been confirmed in my own practice.

I am, Sir, yours faithfully,

Paris. OSCAR JENNINGS.

## DIET AND INOPERABLE CANCER.

*To the Editor of* THE LANCET.

SIR,—I gladly accept Dr. Thomas J. Horder's offer in THE LANCET of April 8th, p. 967, to set aside a certain number of cases of those under his care at the Cancer Hospital in order that the effects of diet may be tested. I feel sure that his clinical and pathological observations will be of great assistance; indeed, I could hardly undertake this extra work without such help. I see also a further advantage in this offer, in that the treatment at the Cancer Hospital will probably be more permanent and continuous than it can possibly be in a general hospital, where patients often have to be sent out at the end of a few weeks, so that there is no certainty either that the treatment will be properly carried out, or that one will ever hear any more of the patient.

I think it must be admitted that in regard to the cases which impressed me there is as yet no scientific certainty that the disease was cancer (for some fibroid tumours are curable by diet, and one of my own cases may have been of this nature). On the other hand, there is nothing inherently improbable in the suggestion that the

[1] Auto-Intoxication et désintoxication, Doin, 1910.

diet which prevents cancer and cures the rheumatism so often associated with it may in some cases even cure cancer. In our present condition of uncertainty on these subjects I welcome Dr. Horder's offer of a cautious scientific trial of diet in selected cases of undoubted cancer. Even if we do but succeed in mitigating the symptoms in these inoperable cases it would be an encouragement to further experiment in cases not so far advanced towards an end that is now considered inevitable.—I am, Sir, yours faithfully,

Brook-street, April 10th, 1911. ALEXANDER HAIG.

## MUSCULAR SPASM IN CARIES OF THE SPINE.

*To the Editor of* THE LANCET.

SIR,—I must ask Mr. Roth to allow me to delay my reply to his letter which appeared in THE LANCET of April 1st. I hope his questions will be answered fully and to his satisfaction when my promised contribution on muscular spasm in caries of the spine appears. I do not wish to anticipate the arguments which I shall advance in this paper at this stage, as some of the observations I have made still require confirmation and further research.

I am, Sir, yours faithfully,

Alton, Hants, April 8th, 1911. H. J. GAUVAIN.

## MEDICAL REGISTRATION IN THE ORANGE RIVER COLONY.

*To the Editor of* THE LANCET.

SIR,—In your column of South African Notes in THE LANCET of April 8th a point is raised of some interest regarding medical registration in the Orange River Colony. It appears that two South African students, who had passed the medical Staats-Examen in Germany, applied to the Medical and Pharmacy Council of the Orange River Colony for a certificate of registration, and that this Council had refused the application. The reason for this refusal was that under the existing law an applicant may not be registered on the degree or diploma of any foreign medical school unless such degree or diploma entitles the holder to practise in the country in which it had been conferred. The German diploma in question did not confer this right to practise in Germany because the holders did not take out letters of naturalisation. They now return to South Africa and find themselves debarred from practice in their own country because they had not naturalised themselves in Germany. It appears to be clear that the Medical Council of the Orange River Colony could come to no other decision than it did; at the same time the feeling of injustice experienced by the young medical men, who had successfully passed their examination, but find themselves without a profession because they have not naturalised themselves as citizens of a foreign State, is one that is intelligible and to be regarded with sympathy. It is regrettable that attempts should have been made to stir up racial feeling in the matter; no unprejudiced person would suppose the Council to have acted otherwise than in accordance with its duties, as laid down by Ordinance. Whether it adopted the right course in resigning as a body (with one exception) because the Minister for the Interior did not rebuke or remonstrate with his colleague, the Minister of Justice, for some depreciatory remarks the latter had made concerning the Board, is another matter. General Hertzog's utterance was, after all, an affair of words only; while the Board, by its action, has left the province bereft of medical advice in any skilled and corporate form. This is very unfortunate at this juncture, when a Public Health Bill for the various Provinces of the Union is just being introduced. I am, Sir, yours faithfully,

April 8th, 1911. OLIM AFRICANUS.

## MODERN VIEWS OF HYSTERIA.

*To the Editor of* THE LANCET.

SIR,—It is with some surprise and much regret that I observe in the interesting review of the articles in *Brain* on Hysteria published in last week's issue, that while the many views of all the foreign writers on this difficult subject are dealt with, no mention is made of the new and original theory recently given to the world by the late Dr. T. D. Savill. As a favourite pupil of the great Charcot, Dr. Savill was much looked up to abroad, and his lectures on "Hysteria and Allied Vaso-motor Conditions" have been pronounced by an eminent French doctor as a most valuable book, and one worthy of translation into both French and German. Surely we in England are not going to be the last to appreciate the work of one of our own countrymen. Any article which does not at least mention Dr. Savill's name in connexion with hysteria must surely be considered incomplete.

I am, Sir, yours faithfully,

April 10th, 1911. JUSTITIA.

## THE DRAINAGE OF CANNES.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

*Old Grievances and Modern Remedies.*

PROGRESS comes slowly at Cannes. More than 30 years ago visitors, especially English visitors, complained, and not without cause, of the bad odours on the sea front, and within the houses or hotels. Indignant letters were sent to the British press, both lay and medical. Reports were written on the spot by THE LANCET Special Commissioners, and were supported by a great engineering authority in a letter published subsequently by THE LANCET. After first protesting that there was no special difficulty in draining such a town as Cannes in a satisfactory manner, Sir Robert Rawlinson insisted in our columns, with emphasis, that it was quite impossible to empty large cesspools without creating a dangerous nuisance. He further added that when a cesspool was thus emptied it was ten times more dangerous than when it was full. In the latter case there was only the surface to give off injurious effluvia, and this was covered over with scum. But if the cesspool was empty then all its filthy walls generated odours. Thirty years ago, in response to general protests, the feeling against cesspools became so strong that the late Monsieur Gazanaire, at that time Mayor of Cannes, wrote to the *Morning Post* and other English papers explaining that he had taken up the matter, that sewers were then in course of construction, and that Cannes would soon have a general system of drainage. Shortly afterwards there was a cholera epidemic at Marseilles and Toulon, which did not fail to occasion a panic along all the French Riviera. Under the stress of all these circumstances the advice of Sir Douglas Galton was secured, and he drew up a scheme for the drainage of Cannes. A water carriage system of drainage was then applied to a small district known as the Vallon Provençal, and gave such satisfaction that it was proposed to extend it to other parts of the town. The panic caused by the cholera, however, so reduced the receipts of the town that the local finances did not admit of the necessary expenditure. Instead of building more sewers all persons coming from Toulon or Marseilles were carefully watched and inquiries made. If it appeared that they had suffered, even from only a very slight attack of diarrhœa, a large amount of disinfectants was thrown down the drains of the house they inhabited. All luggage and clothes coming from cholera districts were fumigated before they were allowed to enter the town. The panic had apparently one good result: the death-rate was lower during the cholera epidemic than was usual at that period of the year. Cannes escaped from cholera, and we shall see what use has been made of its uncompleted scheme of drainage.

*Many Schemes and Much Delay.*

All this is ancient history. Cannes, exposed to another cholera epidemic in 1892 and 1893, again escaped, though such close neighbours as Toulon and Marseilles once more suffered. To-day even the old and far more obstinate adversary, typhoid fever, is becoming scarce. The fact is that progress in sanitation, though slow, nevertheless exists; and after 30 years the effect begins to tell. Perhaps the advance has been delayed because sanitary reformers, promoters of much-needed drainage schemes, were too ambitious. Big sewers were to be built in all directions to take rain-water as well as all other water. Obviously the main collector would run along the sea-front of the beautiful east bay that Cannes overlooks. But this point once reached, there was no longer any fall to ensure the continued flow of the sewage to some outfall sufficiently removed from the town. It was then proposed that one or more pumping stations should be established to raise the sewage to a higher level and thus ensure its continued flow to the outfall. But such pumps are

expensive to purchase and to maintain, and the municipal council did not see its way to provide for the cost or to incur the unpopularity that an increase in local taxation would occasion. Scheme after scheme was proposed, ardently debated, and ultimately rejected.

From the first a few more perspicacious persons favoured the separate, or Waring system, as it was called in those days. One great argument in its favour is the fact that though there is a good annual rainfall on the Riviera, it is not spread over a large number of days as in England or the north of France. On the Riviera, if it rains, it pours, coming down as storm rain and not in gentle showers. This is very agreeable in so far as it provides the necessary amount of water without interfering too frequently with the fine weather, but it greatly accentuates the difficulty of building sewers. Under these circumstances the sewers are likely to be far too big for dry, or too small for rainy, weather, and the larger the sewer the greater the expense. The separate system entirely avoids this difficulty. In a small town like Cannes, with only some 30,000 inhabitants, pipe sewers are quite large enough to act even as main collectors so long as the rain water is excluded and only the soil and the slop or kitchen waters admitted. The pipes are also much cheaper, though, on the other hand, some sort of separate provision has to be made for the rain water. In the smaller streets the rain water is allowed to flow away by the surface gutters, and this means no other cost than that already incurred in keeping the streets properly paved. In the larger streets there was frequently an old and big masonry sewer already in existence, constructed in former days for ordinary purposes or built more recently as the commencement of a drainage scheme in which everything was to go to the sewer and be raised by a hydraulic engine so as not to fall into the sea close to the town. The pumping station, however, was never built, but the old sewers and those constructed in anticipation of a lifting pump came in most usefully as a means of disposing of the rain water. With the separate system the water in these large sewers could be allowed to flow into the sea wherever the natural gravitation best favoured such an outfall.

The well-known sea front, with its palm trees and many seats, called the Boulevard de la Croisette, is the natural site for the main collector, but there is no fall, it is on a dead level with the sea-shore. Up the rue de la Foux, running at right angles from the shore to the farthest north-east inland limit of Cannes, the first main pipe collector, 50 centimetres in diameter, has been laid down. As this pipe travels inland and uphill the sewage it receives has a good fall, and this is also the case for most of its tributaries. The down rush of water into the second main collector, which follows the shore and, as explained, can have no fall, helps to push the otherwise sluggish current along. The sewage now flows in a westerly direction past the new Casino, the port, then by a tunnel under the rising ground where the *route de Fréjus* is situated, to reach the sea on the other or outer side of the harbour mole. Here a great iron pipe has been sunk into the water. This pipe is the outfall, and it is laid in the sea 300 metres, or 1000 ft., beyond the high-water mark. At first the sea is only 3 ft. deep. At 200 metres it has a depth of 12 metres, and at 300 metres only is the depth of 15 metres (50 ft.) attained. This is a considerable distance beyond the end of the mole. Here also is the principal outfall for the rain or surface drainage sewer, but it is only carried out to sea for a distance of 80 metres. Clusters of sea-gulls hovering over the water indicate the exact position of both these outfalls and show that they contain a good deal of organic matter which is considered quite edible by the birds.

*Insufficient Fall and the Separate System.*

Altogether the town of Cannes now boasts of 40 kilometres, or 25 miles, of sewers, but they do not all lead to the main outfall beyond the mole. It is stated by the different officials at the town-hall that there are about 2600 houses at Cannes, and that to-day some 2000 of these houses drain direct into these sewers. The mole outfall discharges the sewage of 50 per cent. of the population. Of the remainder about 30 per cent. have their sewage discharged into the sea by six minor sewer outfalls, and 20 per cent. still drain into old-fashioned cesspools, which, however, tend daily to disappear. Thus more than 30 years' agitation has not sufficed entirely to abolish the cesspool system, but by far the greater number have been done away with and those that still remain stand condemned. In some cases cesspools exist because there is no sewer near enough for them to drain into. The minor outfalls are to the East of the town and are prolonged into the sea 50 to 80 metres (164 to 262 ft.); but the water here is only from 2 to 5 metres deep (6½ to 16½ ft.). Of course at these outfalls there is only a small amount of sewage. On one occasion when there were complaints as to bad odours it was found that the outfall pipe had broken near the shore.

The principal question which arises is the possibility of keeping a long main collector clean when there is practically no fall, barely 1 in 1000. This lack of gravitation is stated to be compensated by the use of automatic flush tanks. These measure from 1 to 2 cubic metres (35 to 70 cubic feet), they discharge their contents six times a day, and there are 55 of them. But there are a few extra large flush tanks, so that the total discharge of clean canal water is estimated at 300 cubic metres, or 10,594 cubic feet six times a day. It is maintained, with every show of confidence, that these automatic flush tanks and the flow of sewage from the higher parts of the town suffice to keep the second main sewer clean, in spite of the fact that it is on a dead level throughout. Fortunately, there are masonry-built man-holes at short intervals, and especially at the angles or corners, so that the working of the system is easy to control and deposits obstructing the sewer can be promptly removed. Nor is this all. In front of each house connected with the sewer, on the causeway and close to the wall, a small iron lid fitted into the flagstone will be observed. This is an inspection-hole for the intercepting trap placed between the house drains and the public sewer. There is here a 4-inch water-seal to prevent sewer air ascending into the house drains.

*Economy in Health and Money.*

Much has been said, and said often, in regard to the cost of drainage schemes, and expense has been made the excuse for many postponements of much needed reforms in Cannes as elsewhere, but now in Cannes householders have connected with the sewers because to do so meant, not an additional outlay, but a real and permanent economy. The tax is based on the net revenue of house property. An example was given me at the town hall. A house was cited that had been let on lease at 8000 francs, or £320, a year. A quarter is taken off this sum as an allowance for repairs, insurance, direct taxation, &c., and the house is assessed at 6000 francs a year. On this a 2 per cent. drainage tax is levied; this makes 120 francs, or £4 16*s.*, per annum. According to the French Public Health Act of 1902, all houses must connect with the sewer, where there is a sewer, for slop water, and for this no tax is levied. To connect the soil pipes with the sewers is not obligatory unless the general drainage scheme has been approved by the Central Government, and no such approval has been given to the Cannes scheme. But as the landlord is forced to connect his kitchen waste-water pipes with the sewer it does not greatly increase his outlay to connect his closet pipes at the same time. Having done this his cesspool is cleared out for the last time, disinfected, and filled up, and thus that dangerous nuisance has disappeared for ever. While it existed he had from time to time to pay 8 francs per cubic metre to have it emptied. For a house assessed, as in the case mentioned above, at 6000 francs the emptying of the cesspool would cost about 300 francs, or £12, per annum, and now the sewer tax only costs £4 16*s.* per annum. The outlay is thus soon recouped. As for hotels, they had to pay from £20 to £40 a year just for the emptying of their cesspools. The building of the sewers has cost the community about £40,000 and before they are completed will cost £10,000 more. But the sewer tax, while it saves the householder's money as compared with the cost of cesspools, brings in a good income for working expenses and sinking fund. Under such circumstances it should be comparatively easy to carry out sewerage schemes. The town is also connecting with its system Cannet and other places beyond its boundaries, so that these outlying districts shall not befoul Cannes itself. This used to happen frequently, notably on the Boulevard Carnot and the *Ancien Chemin et Boulevart du Cannet.*

Thus Cannes at last possesses something like a complete system of drainage. It is therefore most interesting to speculate as to what the results have been on the health of the population. It is generally known that there has

been no typhoid fever epidemic for the last ten years, but more detailed information is needed, and in the interests of the town should be prepared and published. There has been in existence what was called a *bureau d'hygiène* where a medical practitioner and a dispensing chemist did attend to such questions as disinfecting after infectious diseases, but they did not issue annual reports or summarise the statistics which the registrar of births, deaths, and marriages has to keep. There is, however, at the *bureau d'hygiène* a special account kept of the number of diseases notified, but this dates back only to 1906, and no annual summary has been compiled. It is therefore necessary to go over these books month by month, and in this way it can be ascertained that 17 cases of typhoid fever were notified in the year 1907. The next year there were 29, in 1909 only 20, and in 1910 there was a further reduction to 8. Going into the detail of these eight cases, three were found to have occurred in houses which were not connected with the sewers. These figures include the visitors, who are roughly estimated to number 8000 in the winter. What effect they have on vital statistics during the season may be judged from the fact that of the 56 deaths occurring from all causes during the month of February last 10 were of persons foreign to the town of Cannes. Though there are no precise figures forthcoming, the death-rate is believed to be very low, and it seems quite certain that typhoid fever, which used in the old cesspool days to be the bane of Cannes, is disappearing. It must be noted that during all this time the water-supply has remained the same; consequently the benefits secured may be attributed to better drainage, greater cleanliness, and improved sanitation.

## LEEDS.

(FROM OUR OWN CORRESPONDENT.)

*Annual Meeting of the General Infirmary at Leeds.*

THE 143rd annual meeting of the General Infirmary was held on March 30th under the chairmanship of the treasurer, Mr. Charles Lupton. There was a good attendance of governors, subscribers, and friends, in view of the contemplated expenditure in alterations of a large sum of money in the immediate future. In presenting the annual report and balance-sheet Mr. Lupton showed that, in spite of the disadvantageous working conditions entailed by the fire of some months ago, the amount of work accomplished during the 12 months covered in the report exceeded that attained in any previous year. No doubt the recent increase in the assistant surgical staff has been a factor in securing this result, which, though in some respects a matter for congratulation, conveys to those acquainted with the working of the infirmary an impression that the institution is being carried on at a pressure which in some respects is too high. During 1910 there were admitted into the wards of the infirmary 7494 patients, against 7043 for 1909. Of these 1275 were admitted into the medical wards, 4487 into the surgical and accident wards, 1055 were cases of disease of the eye, 311 cases of disease of the ear, and 366 were cases of diseases peculiar to women. In addition 441 in-patients were under treatment at the beginning of the year either at the infirmary or at the two semi-convalescent hospitals at Cookridge, so that the total number of in-patients treated during the year amounted to 7935. The daily average number of in-patients was 377, as against 375 in 1909, while the average number of days spent by each patient in the wards of the hospital was reduced from 18·6 to 17·5. The number of deaths was practically the same as in the former year—viz., 506 for 1910 and 505 for 1909. On these figures the death-rate works out at 6·4, or if the number of those patients who died within 24 hours of admission—namely, 141—is deducted, at 4·7. Some reduction in the number of out-patients treated during the year was noted, though the number of accidents and emergency cases had increased. This reduction in the number of out-patients is viewed with satisfaction, as it is felt that the number of out-patients, especially of those with trivial ailments, is much larger than it should be. For some years there had been a steady increase, owing in part, it was thought, to the institution of medical inspection in the elementary schools of the city. The number of out-patients, not including casualties, was 28,681, as against 32,339. The increase in casualties, including accident and emergency cases, was striking, and amounted to upwards of 3000, the numbers for 1909 and 1910 being respectively 16,112 and 19,141. This increase may be in part attributed to the fact that trade has been good in Leeds during the past year. Certain improvements are in contemplation in the working of the out-patient department, which it is hoped will result in a permanent reduction in the number of the out-patients, or at least in an arrest of that continuous increase which has been so noticeable of late years. The financial part of the report was less a matter for optimism, for the expenditure markedly exceeded the income, and Mr. Lupton made a strong appeal for a great increase in the number of subscribers. For many years the regular annual subscriptions had remained stationary. Donations and legacies had on many occasions helped the infirmary out of difficulties, but those windfalls had to be used to cover current expenses, and were uncertain sources of income to rely upon. Mr. Lupton referred with satisfaction to the endowment of a second bed by a donation of £1000 from Mr. Alfred Bilbrough in memory of his mother, and to the endowment of a bed by Mrs. Bang in memory of her husband. Some few months ago certain regulations were adopted by the board and acquiesced in by the honorary staff, limiting the number of appointments which might be held by those occupying positions on the staff of the infirmary, and some anxiety as to the adequate staffing of the smaller institutions arose therefrom. An undertaking was given that a rule should be brought forward at the annual meeting which would meet the views of the Association for the Prevention and Cure of Tuberculosis. The new rule, which was proposed and duly carried, was to the effect that a third assistant physician should be appointed to the infirmary, and that he should have charge of 15 beds at the Leeds Hospital of the Tuberculosis Association. The Tuberculosis Association will thus always have on its staff one of the younger men of infirmary standing. On the other hand, the number of cases of phthisis seen not only in the wards but in the out-patient department of the infirmary has diminished since the development of the new organisation for dealing with that affection, and the terms of this new appointment will ensure that the junior members of the staff are not cut off from the acquisition of special experience in tuberculous diseases. On the medical side there will therefore be three full physicians and three assistant physicians.

April 10th.

## SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

*The Question of Precedence between the Royal Colleges.*

THE question of precedency at present under dispute between the Royal College of Physicians and the Royal College of Surgeons of Edinburgh has not advanced materially towards settlement. The Royal College of Surgeons appealed to the Court of Session against the refusal of the Lyon King to take jurisdiction. The First Division of the Court of Session ordered the respondents to add pleas raising questions of competency and jurisdiction, and remitted the case back to the Lyon King to proceed. On March 27th the Lord Lyon King of Arms, in the Lyon King's Court in the Register House, Edinburgh, heard counsel on the competency of the petition by the Royal College of Surgeons. Counsel for the Royal College of Surgeons asked that the respondents should first state their objections to the petition of the appellants to the Lyon King. Counsel for the Royal College of Physicians held that neither by Act of Parliament, by Royal Warrant, nor by precedent did the Lyon King possess jurisdiction to grant or declare precedency or to settle a dispute as to precedency. Counsel for the appellants maintained that the Lyon King had absolute jurisdiction, quoting cases in support. Judgment was reserved.

*New Superintendent for the Royal Infirmary, Edinburgh.*

The managers of the Royal Infirmary had a difficult task before them in choosing from the short list published in THE LANCET last week the successful candidate for the important post of superintendent. It will be seen that the claims of all on the selected list were very strong, and

Lieutenant-Colonel Sir Joseph Fayrer, R.A.M.C., on whom the choice finally fell, is to be much congratulated. Sir Joseph Fayrer, M.D. St. Andrews, F.R.C.S. Edin., was educated at Rugby, Trinity College, Cambridge, and St. George's Hospital, London, and Edinburgh. He passed first into the Royal Army Medical Corps in the competitive examination in 1886, and has seen varied service in India, with the Royal Horse Guards in London, and in Edinburgh. In 1903 he was appointed secretary to the Principal Medical Officer of the London district and in 1904 he took medical charge of the Duke of York's School, acting as commandant towards the end of his five years' appointment. He is at present in charge of the military hospital at Hong-Kong. Sir Joseph Fayrer is the eldest surviving son of the late Sir Joseph Fayrer, of Lucknow fame.

*The Legal Responsibility of Contract Surgeons in Regard to Certificates.*

A very interesting suit against a medical man has just been tried and failed. Dr. Matthew Dunning of Glasgow had given a certificate of sound condition of health to a member of the Irish National Foresters' Benefit Society, to which Dr. Dunning is medical officer, which excluded the pursuer from further participation in the sick benefit fund. The pursuer, it appeared, had carried his appeal to the highest arbitration committee of the society, which had ruled against him. He thereupon brought an action against Dr. Dunning in the Glasgow Sheriff Court for £275 damages on the ground that the signing of this certificate had deprived him of benefits to which he was entitled. Sheriff-substitute Boyd had decided against him, and the present trial was an appeal against that decision. Sheriff Gardner Miller, in adjudicating the appeal, pointed out that the surgeon was employed by the society, not by the pursuer, so there was no contract, and consequently no breach of contract, between them. As to the commission of a delict, it was the duty of pursuer to prove that defender had given a certificate which he either knew to be false, or had given culpably and recklessly. The sheriff was doubtful whether pursuer had a relevant case on that ground. His remedy seemed to lie against the society for a breach of agreement, but he had already had recourse against the society in the method open to him, and it was not until the decision went finally against him there that he sought redress at law against the medical man. Assuming the action to be relevant, pursuer had failed to prove either that the certificate was falsely given or given culpably and recklessly. Defender's statement in the witness-box that he believed the certificate to be true was supported by the evidence of Sir George Beatson, Dr. Alexander Moffat, and Dr. George Henry Edington, who found the pursuer's arm sound at an examination shortly before the proof, and believed it probable that he had fully recovered at the time the certificate was signed. Opposing medical evidence of Dr. A. E. Maylard and Dr. Young, who did not think the patient had at the time recovered, did not state their belief either that the certificate had been given either falsely or culpably and recklessly. The sheriff found no proof of lack of professional honour or skill, and dismissed the appeal with expenses to the defender.

*Post-Graduate Course at Glasgow Royal Infirmary.*

The summer course of the post-graduate classes held at the Royal Infirmary, Glasgow, opens on May 1st. Full particulars regarding the course can be had by applying to Dr. J. M. Thom, medical superintendent of the infirmary.

*Prevention of Consumption in Glasgow.*

Dr. W. L. Reid, chairman of the medical advisory board of the Consumption Sanatoria of Scotland, near Bridge-of-Weir, has addressed on behalf of the board a letter to the Lord Provost and corporation of Glasgow in which he says:—

After an extensive experience of consumption and its treatment, gained in connexion with the above sanatoria as well as in private practice, the board has come to the conclusion that if the scourge of consumption is to be controlled, and, it would hope, removed from our midst, it can only be effected by the removal of the slum properties in the city, which, besides being bad for the people morally, form a most favourable breeding-ground for the disease. In the present condition of things the board considers that, however valuable sanatoria may be in the treatment of consumption (and putting much value on sanatoria), the city should aim at prevention rather than cure. The board is also strongly of opinion that the treatment of patients suffering from consumption in a private house is defective in most cases, and in many cases is a serious danger to the community, and it thinks the time has come when the corporation should face the position by declaring consumption an infectious disease and have it dealt with as such, and, among other measures, provide hospital accommodation for the treatment.

*Death of Dr. James Rorie.*

The death has occurred of Dr. James Rorie, for the long period of 45 years medical superintendent of the Royal Lunatic Asylum, Dundee. Dr. Rorie was born in Arbroath, and graduated in Edinburgh. During Dr. Rorie's tenure of office Dundee Royal Asylum has grown from an unpretentious institution to what it now is, and many humane reforms were carried through by him in the treatment of the mentally afflicted. Dr. Rorie was also a lecturer on mental diseases in Dundee College. He was 74 years of age.

*Gift to Gray's Hospital, Elgin.*

In answer to an appeal for more funds, which has just been made by the trustees and managers of Gray's Hospital, Elgin, Lord Mount Stephen has intimated that he will present to the institution 250 shares of the Northern Pacific Railway to the par value of £5000 to pay 7 per cent. dividend of £350 per annum, on condition that the people of the county contribute £5000. The hospital has till lately been self-supporting, and has, through the generosity of a late native of Elgin, been equipped with all the latest improvements. Last year the number of patients treated was 401, besides 522 out-door patients. The income for the year was £1475 19*s.* 7*d.*, which was £354 4*s.* 1*d.* less than the expenditure. The directors hope to raise an endowment of from £12,000 to £15,000.

*Montrose Asylum Charter.*

A meeting of the Montrose Asylum and Infirmary Board was held on April 4th, when the report by the special committee appointed by the board in connexion with the proposed new constitution of Montrose Asylum, and regarding the recent conference with representatives of the Forfarshire district lunacy board and representatives from the Forfarshire and Kincardineshire parish councils, was submitted. The first proposal of the district lunacy board and parish councils is that the Royal Infirmary at Montrose should be separated from the asylum. The asylum committee approved of the proposal that in the event of a separation the infirmary should be compensated for the change, although in the committee's opinion the separation of the two institutions and their respective rights and interests remain an unsolved, though perhaps not an insolvable, position. The third proposal is that the new asylum board, to begin with, shall consist of the whole of the existing managers and 24 new members, to be elected by the public bodies in Forfarshire and Kincardineshire. The fourth proposal is that the present managers shall continue members of the board until death, resignation, or disqualification through non-attendance reduces their number to 12. The fifth proposal is that the board shall then consist of 36 members, 24 to be elected by public bodies in Forfarshire and Kincardineshire and 12 nominated members. It was found impossible to come to an agreement on these three proposals. With regard to the last-named proposal, the asylum committee states that the original claim of the memorialists—the district lunacy board and parish councils—has developed into a demand for ultimate supremacy over the present management, a supremacy of 2 to 1, implying virtual command over the affairs of the asylum. It was unanimously agreed that the proposals and the report of the asylum's special committee should be forwarded to the General Lunacy Board with a view to making any minor alterations considered advisable on consultation with that body.

*Serious Lack of Vaccination in Turriff.*

At a meeting on April 1st of the Turriff district committee Dr. J. P. Watt, medical officer of health, referred to the fact that the number of unvaccinated children was increasing yearly. In Fraserburgh, for instance, in the last two years the number of unvaccinated children was 27 per cent. He thought the local authority had made it too easy for people to avoid vaccination. Perhaps by-and-by they would have to face a very serious state of affairs. Dr. Watt said it was time a reform was brought about.

April 10th.

A DEVONSHIRE CENTENARIAN.—Miss M. B. Cobbett of Exeter celebrated her 101st birthday on March 29th. Miss Cobbett was born in Henrietta-street, Covent Garden, London, and has resided in Exeter for the past 46 years.

# IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

*Vaccination in Ireland.*

AT a meeting of the Carrickmacross board of guardians on April 6th reports of vaccination defaulters to the number of 70 were received from the medical officers. The Local Government Board has intimated that the guardians had no option in the matter but to prosecute Mr. P. De Burca, an Excise officer, who had previously been excused by the guardians on the ground of conscientious objection. A letter of protest from this gentleman was read, in the course of which he said:—

> If you stick to your guns and decline to prosecute, the Local Government Board will likely send down Dr. Brian O'Brien (one of the medical inspectors) to treat you to a lecture and give you a pile of statistics and names. When he does come, I trust you will allow me to give a short answering address, and if you do so, I venture to say that I shall have little difficulty in knocking the bottom out of any arguments he may put forward.

Mr. Thomas Cleary, vice-chairman Enniscorthy board of guardians, writing in support of Mr. De Burca's attitude, stated what the position of his and other Wexford boards of guardians was in reference to this matter. They had refused to carry out the Vaccination Acts until the Local Government Board gave a guarantee that glycerinated calf lymph would have no ill-effects. That guarantee had not been given, and the Local Government Board had lectured them several times; but they had snapped their fingers at them, believing that it was an intolerable injustice to prosecute Irish parents under an Act which could not be enforced in England, Scotland, or Wales. After a discussion it was resolved, by 11 votes to 5, to adjourn the matter until the next meeting. Some heated interchanges occurred between two of the guardians, one of them remarking that if it was a poor man's child he would be prosecuted, but that a Government pensioner could do as he liked.

*The Lisburn Infirmary Grant.*

At a meeting of the proposal committee of the County Antrim council, held in Ballymena courthouse on April 7th, an application was made for payment of the sum of £800 as maintenance of the County Infirmary at Lisburn for the year ending April 30th, 1911. A strong deputation from the infirmary committee appeared in support of this application, which was an increase of £200 on the amount previously granted. The committee decided to grant £600 for the maintenance of the infirmary as usual, some of the members stating, however, that they had an open mind on the matter, and that if they found in future that patients were coming from all parts of the county to the infirmary they would then be prepared to vote for an increase. Those who objected to the increase did so on the ground that as they had increased their nursing staff and consequent expenditure at the workhouse infirmary, and at the Cottage Hospital, Ballymena, they thought £600 was sufficient to pay to an infirmary at the other end of the county.

*Ballymena District Nursing Society.*

At the annual meeting of the above society and of the local branch of the Women's National Health Association on April 7th, the interesting fact was brought out by the chairman (the Right Hon. John Young, D.L., LL.D.) that the urban council of Ballymena had been the first in the realm—so far as he knew—that had acknowledged its obligations to the public by paying for the services of a tuberculosis nurse in the town of Ballymena.

*Royal Victoria Hospital, Belfast.*

The annual meeting in connexion with the Royal Victoria Hospital was held on March 27th in the city hall, Belfast, the Lord Mayor occupying the chair. The reports showed that during the year 1910 there were 3260 new cases treated in the wards, which, with 227 remaining from the previous year, made a total of 3487 intern patients. 33,124 new patients were treated in the extern department. Sincere regret was expressed at the deaths of Dr. Joseph Nelson and Dr. W. B. McQuitty. Financially the expenditure had exceeded the receipts by £315 15*s.* 9*d.* The total number of new cases treated in the hospital, intern and extern, amounted to 36,611, not including the Throne Hospital for Children, which is in connexion with the Royal Victoria Hospital. Special reference was made by several of the speakers to the new block (for vaccine therapy and X ray work) to be erected as a memorial to King Edward, to the importance of getting more annual subscriptions so as to open the unused beds, and to the value of the endowment of medical research. The staff were specially thanked for their services.

April 10th.

# PARIS.

(FROM OUR OWN CORRESPONDENT.)

*On the Renewal of Medical Prescriptions.*

THE question of renewal of prescriptions, which threatens to create a conflict between medical men and druggists, has of late caused some excitement among medical societies and druggists' unions. Even the courts of law are beginning to occupy themselves with it. The medical societies of the different *arrondissements* of Paris, the general councils of these societies, and several provincial societies have deliberated on the question. It is difficult to foresee what the eventual solution of this difficult problem may be. From a legal point of view the question is extremely involved. Each prescription delivered by a practitioner to a patient should, on presentation to a druggist, be copied by him in a special register. In the provinces the druggist retains the prescription. The number on his register, corresponding to his copy of the prescription and inscribed upon the phial or box which he delivers, is a sufficient indication for the renewal of the medicine should it be desired. In Paris the druggist returns the prescription to the patient, enabling him to provide himself indefinitely on presentation of the same prescription or of its representative number inscribed on phial or box. This constitutes a real abuse and a grave injury to medical practitioners, as the remedy which has been prescribed once in the course of a single consultation can be procured by the patient for an unlimited period. In some economical families prescriptions are carefully preserved, ready to be reproduced and made up without medical advice, on the appearance of an ailment supposed to be similar to that for which the medicine was originally prescribed. In this way, also, prescriptions are often handed about to relatives and friends. Apart from the prejudice caused to the medical profession, the patient runs considerable risk if, without taking further advice from the medical man who has diagnosed the case, he makes use of a remedy adapted to the circumstances of his case at a certain moment, but which, without his knowledge, may no longer be appropriate. A real danger is incurred where very active remedies are concerned, the prolonged use of which without competent advice may cause deplorable consequences. To the urgent and repeated complaints of medical men on this subject druggists turn a deaf ear, for they take it as a matter of course that patients should supply themselves unlimitedly with remedies without renewing medical advice. The care taken by country druggists to retain the prescription is all in their own interest, and is designed to make it impossible for the customer to go elsewhere for his supply of the desired remedy. Legal decisions on this point are contradictory. A statute exists, dated Oct. 29th, 1846, which rules that poisonous substances may be delivered by the druggists only on production of a signed and dated medical order. On Oct. 29th, 1910, judgment was given and a fine imposed of 600 francs against a druggist who made it his practice to supply applicants with medicines containing active toxic properties on the simple and indefinite presentation of the same prescription. This sentence in its detail dwells on the regrettable and illegal abuse which has crept in among druggists, and declares that even anodyne formulas may not be delivered to patients save in compliance with a fresh prescription. Druggists are much disturbed by this sentence, which, indeed, was sufficient of itself to decide the question in favour of the practitioners. The acquittal of a druggist last month at Compiègne, who was prosecuted by a local medical syndicate for having delivered an innocuous drug to a patient unprovided with a new prescription, has in its turn greatly moved the medical profession, and resolutions have been passed by different societies demanding a revision of the law on this subject. The Society of the Seventh Arrondissement demands that henceforth prescriptions shall specify the

duration of the treatment, and conclude with the words "To be renewed" once, twice, or thrice as the case may be, or "Not to be renewed." The Society of the Seventeenth Arrondissement demands the revision of the tables of poisons of which the renewal without a fresh prescription is expressly prohibited by the law. The table compiled in 1850 is now ridiculously incomplete, numerous active substances having been discovered since it was first drawn up.

*Examinations at the Paris Faculty of Medicine.*

The Council of the Faculty of Medicine has just taken a decision which, though perfectly legitimate on its part, has roused great excitement among the students. It has been the custom that the names of the examiners for all the current examinations should be posted up a week beforehand. Henceforth this list will be suppressed, as was done some years ago at the Sorbonne. The reason for this change is obvious. Many of the students when they became acquainted with the identity of their coming examiners deluged them with a perfect rain of "recommendations," which, even though the judges paid no attention to them or even showed exceptional severity to the offending candidates, were none the less very annoying. These recommendations were not less dreaded by those who were requested to give them. It was a long-standing tradition that the head of a hospital service could hardly refuse to any one of his pupils on the eve of an examination a recommendation to those of his colleagues who formed part of the jury; consequently, almost all the candidates were more or less recommended. The advantage was minimised by the multiplicity of the recommendations, with the result that the bearers of recommendations might just as well have spared themselves the trouble of procuring them, for it was obviously not possible to pass everyone. The tenacity of certain persons in recommending a relation or friend was not restrained by any sense of propriety, but even went to the length of forcing themselves on the private residences of members of the jury. Henceforth it is to be hoped that the question of recommendations for examinations has become a legend of the past.

April 10th.

## NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

*Plague.*

PLAGUE is now prevalent in all the districts of the Delhi division except Hissar. There were 2084 deaths during the week ending Feb. 25th, 529 of these occurring in the Girgaon and 504 in the Umballa district. In the Delhi district there were 438, in Karnal 395, and in Rohtak 205. Nine cases occurred in Delhi city, but none of these were fatal. The disease has appeared in epidemic form somewhat later than usual, and we can only hope that it will die out again by August. This is what generally happens in the Punjab even when the type of plague is most malignant. The appeal of the Peking Government for experts to investigate the outbreak of plague in Manchuria and to devise means for checking the epidemic will naturally be responded to promptly enough from Europe. Japan, anxious as regards the possible spread of the disease to Korea, has already moved in the matter. It is in India, however, that plague experts are to be found at the present time, and a medical officer could well be spared for service in China. Not that a whole host of medical men are likely to effect more good than could be done by the issue of a proclamation from Peking laying down a few simple rules for the guidance of the people in the affected districts, and the absolutely strict enforcement of such rules by the local officials. Evacuation of dwellings and their disinfection by sunlight and air, *plus* disinfectants of standardised strength: that is practically all that can be done. There is, of course, the drastic remedy of fire, infected villages being burned, but this cannot be applied to the towns. The prophylactic measure of inoculation may come later; as matters now stand a supply of serum in China is wanting. We have had plague in India for nearly 15 years, and it is still with us—the deaths in the United Provinces in a single week now are far more than the 1000 returned as the total in Manchuria. It dies away one year only to reappear the next with terrible virulence, and we have still to rely upon first principles—"evacuation and disinfection." Inspection of railway travellers, plague camps, examination of corpses, and all the precautions originally adopted have long since been abandoned. When plague spread into the rural areas it was no longer possible to check its advance from province to province. It can only be hoped that China will not go through the unhappy experience of India. The reports during the next few months of the course of the epidemic in Manchuria and Chi-li will be awaited with special interest, particularly as the outbreak is in the dangerous pneumonic form.

*Importation of Drugs.*

Orders regarding the regulations for the importation, possession, and sale of eucaine, beta-eucaine, beta-eucaine-lactate, and holocaine are published. Under the notification of the Government of India, Department of Commerce and Industry, dated Nov. 18th, 1909, the bringing of eucaine, beta-eucaine, beta-eucaine-lactate, and holocaine by sea or land into British India by means of the post is prohibited, while their importation by any other means is restricted to cases in which they are imported by persons or by authorised agents of persons who have been specially permitted by the local government to import drugs. The Governor-General in Council is now pleased to direct that the importation be prohibited except for *bonâ-fide* medicinal purposes, and that no licences for their sale be given to any person other than druggists, chemists, and medical practitioners. Such persons, if desirous of taking out licences, should apply to the collector, who will grant them under certain specified conditions at his discretion. The forms, as well as the conditions of the licences, should be the same *mutatis mutandis*, as those which are approved by the Government for cocaine. The Governor-General in Council is further pleased to direct: 1. That the limit upon which the drugs in question, as well as cocaine and novocaine, may be transported or removed without a permit from any one place to any other place in the Presidency of Bombay, including Sind and Aden, shall be one-tenth of a grain, whether in a dry state or in solution, provided that the limit shall be 20 grains when the drugs are transported or removed by a qualified medical practitioner and six grains when transported or removed by a person holding a *bonâ-fide* prescription from a qualified medical practitioner. 2. That the limit to which the drugs in question, as well as cocaine and novocaine, may be sold by retail at one time or to one and the same person other than a duly licensed medical practitioner, chemist, or druggist, in aggregate, on any one day, shall be one-tenth of a grain, provided that the limit shall be six grains if the drugs are sold to a person holding a *bonâ-fide* prescription from a qualified medical practitioner. The Collector of Bombay has been authorised to issue permits under section 10, clause (a), of the Bombay Abkari Act, for the export of any quantity of eucaine, beta-eucaine, beta-eucaine-lactate and holocaine, which has been imported under section 9, clause (a).

*The Excise Laboratory at Kasauli.*

When Colonel C. H. Bedford, I.M.S., proceeds on leave in April the Government of India has decided to abolish his appointment as director of the Central Excise Laboratory, as it is understood that he has intimated his intention not to return to India. The laboratory will be continued at Kasauli on a reduced scale until the end of this year under Colonel Bedford's head European assistant. Colonel Bedford proposed to Government some time ago that small combined Customs and Excise laboratories should be opened at the chief Customs houses throughout India, and it is understood that this suggestion will be given effect to, probably at the beginning of 1912. Accordingly, Customs officers have recently been under training at the Kasauli Excise Laboratory with this end in view.

*Infant Mortality in Lahore.*

The report of the special subcommittee appointed by the Lahore Municipality to consider the question of infant mortality in Lahore states that Lahore—though its mortality among infants is high when compared with English (and also French and German) figures—compares favourably with Indian, urban and provincial, figures as well as the average for ten years of certain European countries. The committee is of opinion that much can be done to lessen the infantile

mortality in Lahore and to bring it nearer to European standards. The committee would recommend action on the following lines: (*a*) General sanitation and conservancy improvement, including drainage of compounds, cleansing of latrines, removal of filth and rubbish from compounds and houses; removal of animals (stables, cowsheds, &c.) from proximity to dwellings and proper ventilation by building by-laws, &c. To do most of these it is necessary that proper powers of inspection and control should be given to the department of the municipality concerned with public health. (*b*) The encouragement of domestic hygiene and proper care of infants, including proper feeding, clothing, hygiene of mothers and young children. This the committee suggest might be achieved by: (1) the appointment of district nurses, who would make house-to-house visitations and give suitable advice on domestic matters where required; (2) the registration of *dais*, in whose hands the health of mothers and infants lies in the first instance, and who are capable of doing much good or much harm according to their qualifications; and (3) the establishment of a ladies' health committee, the members of which might receive instruction in elementary hygiene and in turn communicate their knowledge to the women in the city.

March 11th.

## AUSTRALIA.

### (FROM OUR OWN CORRESPONDENT.)

*Tuberculosis Conference.*

A CONFERENCE of inter-State health officers was opened in Melbourne on Feb. 25th by the Premier of Victoria. It is composed of all the heads of departments excepting Dr. J. S. C. Elkington, chief health officer of Queensland, who was unable to be present. Dr. B. Burnett Ham of Victoria was appointed chairman. The object was to discuss measures for the prevention of tuberculosis, and particularly pulmonary phthisis. It was decided to sit in private. Dr. Ham made a statement at the end of the first sitting that the conference had decided to consider only practical measures and not touch any academic considerations. The first day was taken up with the question of compulsory notification.

*Melbourne Hospital.*

The building of the new hospital is now fairly under way, and the excavations for the foundation of the first section are almost finished. The only portion of the old hospital demolished to give room for this work was the operating theatre and the secretary's quarters. The whole structure will take some years to complete.

*Charitable Bequests.*

The Commissioner of Taxes in Victoria has recommended that the practice of exempting charitable bequests from probate duty should be discontinued. He reports that in 1910 probate and administration were granted to 4321 estates, of which only 91 carried charity bequests. The largest estate was sworn at £250,000, and only £15 were left to charities. The total charitable bequests amounted to £28,850 out of a total value of £341,370. The average works out at less than ¾*d.* in the £. By exemptions the State forfeited £2219.

*Sydney Hospital.*

The annual meeting of this institution was held on Feb. 21st under the presidency of the Governor of New South Wales, Lord Chelmsford. The report showed that 5921 patients had been admitted for treatment during 1910. The death-rate for all cases was 5·75 per cent., but if those dying within 24 hours of admission were excluded the percentage was reduced to 4·60. The number of operations of all kinds was 3357. The opening of the hospital as a clinical school had been attended with much success. A deficiency in the finances was shown to the amount of £4697, and the financial position generally was stated to be a cause of much anxiety to the governors. Lord Chelmsford in a short speech remarked that he did not think there was any real cause for anxiety, as the public would always see the institution through.

*Broken Ribs in Asylum Patients.*

Some stir was recently caused in Victoria by the discovery of broken ribs in three patients at the Kew Lunatic Asylum who had died within a short time of one another from general paralysis. The inspector-general has stated that after strict investigation it was found that two of the cases were accidentally injured, and that there was no reason forthcoming for the existence of the third. Careful inquiry by himself, the coroner, and the official visitors failed to disclose and evidence of harsh conduct on the part of the attendants.

*Health of Tasmania.*

The annual report of the chief health officer of Tasmania gives the population of that island as 186,860 at the end of 1909. The natural increase per 1000 was greater in Tasmania than any recorded country except Bulgaria. The birth-rate was 30·90 and the death-rate was 10·01, the lowest recorded for Tasmania. The infantile mortality figure was 65. The death-rate from tuberculosis for 1908 was 0·96 and in 1909 0·88 per 1000. The death-rate and percentage of total deaths from tuberculosis were higher in females than in males. Enteric fever showed an incidence of attack of 29 per 10,000. The death-rate was high, 2·01 per 10,000. Dr. J. S. Purdy draws attention to the difficulty of explaining outbreaks in isolated farms where no food-supplies are bought from outside and communication is scanty in every respect.

*Personal.*

Professor A. Watson of the University of Adelaide has obtained leave of absence for 12 months, and will visit the 500th anniversary of the University of St. Andrews in September next. During his absence Dr. Cavenagh-Mainwaring will act as professor of pathology and anatomy.—The following appointments have been approved by the Council of the University of Melbourne for the year 1911 at the various medical schools:—Melbourne Hospital: Clinical lecturers in medicine, Dr. Howard, Dr. Maudsley, and Dr. Springthorpe; surgery, Mr. F. W. Bird, Mr. G. A. Syme, and Mr. R. A. Stirling. Alfred Hospital: Clinical lecturer in medicine, Dr. Mackeddie; surgery, Mr. Hamilton Russell. St. Vincent's Hospital: Clinical lecturers in medicine, Dr. Latham and Dr. Alex. Lewers; surgery, Mr. Murray, Mr. Mostin, and Mr. Douglas Sheilds. As clinical tutors the Melbourne Hospital will have Dr. K. Hiller, Dr. R. R. Stawell, Dr. L. F. Wilkinson, and Mr. Boyd, Mr. Gordon, and Mr. Kilvington. Alfred Hospital: Dr. H. Laurie and Mr. Buchanan. St. Vincent's Hospital: Dr. White, Dr. Summons, Mr. Dunhill, and Mr. Devine.

March 1st.

# Medical News.

UNIVERSITY OF LONDON.—At the Second Examination for Medical Degrees the following candidates were successful:—

PART I.

*Organic and Applied Chemistry.*—Douglas Reid Alexander, St. Mary's Hospital; Bertrand Pulvermacher Allinson, University College; Augustus Rollo Balmain, University Tutorial College and private study; Francis Gregory Lawson Barnes, St. Bartholomew's Hospital; Stanley Batchelor, London Hospital; Arthur Leslie Blunt, St. Thomas's Hospital; Frederick Hubert Bray, London Hospital; Cyril Mary Brophy, University College; John Eric Cheesman, St. Mary's Hospital; Dorothy Chick, Newnham College and London (Royal Free Hospital) School of Medicine for Women; John Edward Clark, Guy's Hospital; Lilian Annie Clark and Mabel Campbell Clark, London (Royal Free Hospital) School of Medicine for Women; Clement Cooke, St. Bartholomew's Hospital; Ernest James Coombe, King's College; Peter Gerald Stevenson Davis, St. Thomas's Hospital; Alexander Declmus d'Avray, University College; John Nissen Deacon, London Hospital; Christopher Ignatius de Silva, University College; Harold Ellis, University College, Cardiff; Hugh Alderson Fawcett, University College; Israel Feldman, London Hospital; Hugo Rudolph Friedlander and Edmund Douglas Granger, St. Thomas's Hospital; Arthur Edwards Gravelle, King's College; Herbert Stuart Griffith, St. Bartholomew's Hospital; Ernest Frederick Guy, University College, Cardiff; Stanley Allman Hall, Middlesex Hospital; Norah Hamill, London (Royal Free Hospital) School of Medicine for Women; Arthur Geoffrey Pateson Hardwick, London Hospital; Cyril Edward Harrison, Middlesex Hospital; Jesse Eva Hart, London (Royal Free Hospital) School of Medicine for Women; Horace William Hay, University College; Sydney Howard Hodges, King's College; Henry Francis Thomas Hogben, Guy's Hospital; Ronald Nelson Hunter, London Hospital; George Maudslay Jackson, University of Bristol; Llewellyn Price Johns, King's College; Mary Emmeline Joll, London (Royal Free Hospital) School of Medicine for Women; Cyril Oscar Howe Jones, St. Thomas's Hospital; Rhys Trevor Jones, University College Cardiff; Samuel Walter Maslen Jones, Middlesex Hospital; Thomas Anstey Jones, University College, Cardiff;

Nicholas Edward Kendall and William Morris Lansdale, Guy's Hospital; Reginald Heber Leigh, King's College; *Abraham Stephen Liebson, South African College, Cape Town; Geoffry Challen Linder, St. Bartholomew's Hospital; Oliver Cuff Link and Edward Richardson Lovell, Middlesex Hospital; Helen Marion Macpherson Mackay, London (Royal Free Hospital) School of Medicine for Women; Showkiram Sahijram Malkani and Philip Sydney Marshall, University College; Alexander Menzies, St. Mary's Hospital; Vivian Mercer Métivier, St. Bartholomew's Hospital; Sinclair Miller, Queen's University, Belfast; Desmond Garrett Fitzgerald Moore and John Branwell Mudge, St. Bartholomew's Hospital; Violet Newmarch, London (Royal Free Hospital) School of Medicine for Women; Owen Parry-Jones, London Hospital; Margaret Russell Paterson, London (Royal Free Hospital) School of Medicine for Women; Arthur Henry Pemberton, University College; *Alan Cecil Perry, London Hospital; Lloyd Desbat Phillips, University College; Emma Christine Pilliman, Girton College and London (Royal Free Hospital) School of Medicine for Women; Leslie Ellis Pimm, King's College; Mary Constance Poonen, London (Royal Free Hospital) School of Medicine for Women; Charles Leslie Grove Powell, St. Thomas's Hospital; Arthur Lisle Punch and Kenneth Noel Purkis, Guy's Hospital; John Sturges Ranson, King's College; Tom Wiltshire Robbins, London Hospital; Violet Ione Russell, London (Royal Free Hospital) School of Medicine for Women; Pinthu Sai, St. Thomas's Hospital; Basil Sampson, Guy's Hospital; Saroz Kumar Sanyal, London Hospital; Hilda Mary Scarborough, London (Royal Free Hospital) School of Medicine for Women; Paul Robert John Schmidt, University College; Edith Annie Shaw, London (Royal Free Hospital) School of Medicine for Women; Bertram Baber Silcock, University College; Alfred George Simmins and John Frank Herbert Stallman, Guy's Hospital; Elsie Stansfeld, London (Royal Free Hospital) School of Medicine for Women; John Greet Stevens, Guy's Hospital; Frederick Reginald Sturridge, Middlesex Hospital; Thomas Collyer Summers, London Hospital; Edward Benjamin Sunderland, University College; *William Edward Tanner, Guy's Hospital; Douglas George Clutsam Tasker, University of Bristol; John Oscar Thomas, King's College; Geoffrey Marr Vevers, St. Thomas's Hospital; Katharine Ada Waring, London (Royal Free Hospital) School of Medicine for Women; Cyril Mathias Williams and Leslie Herbert Worthy Williams, University College, Cardiff; Montague Sydney Woolf, Municipal Technical School and the University, Birmingham; and James Montagu Wyatt, St. Thomas's Hospital.

* Awarded a mark of distinction.

PART II.

Francis Dighton Annesley, Guy's Hospital; John Appleyard, University College; Basil William Armstrong, St. Mary's Hospital; Elizabeth Labrey Ashby, University of Birmingham; Edward Bach and William Claude Percy Barrett, University College; John Rawlings Barrow-Clough and Frederic Vivian Bevan-Brown, Guy's Hospital; Alured Charles Lowther O'S. Bilderbeck, St. Bartholomew's Hospital; Majorie Ada Biandy, London (Royal Free Hospital) School of Medicine for Women; John Bostock, London Hospital; Arthur Ernest Bullock, St. Mary's Hospital; Percy Butler, University College; George Maclean Campbell, University of Bristol; Raymond John Clausen, University College; Thomas Philips Cole, Guy's Hospital; Dora Challis Colebrook, London (Royal Free Hospital) School of Medicine for Women; Donald Murray Connan, King's College and Westminster Hospital; Mehirjibhoy Bomanji Cooper and John Archer Cowan, University College; William Llewellyn Gwyn Davies, Frederick Henry Dodd, and Henry William Evans, Guy's Hospital; Julian Trevor Eyre Evans, St. Mary's Hospital; Walter Stuart Evans, University College; Hugh James Orr Ewing, University of Bristol; Hamilton Gould, Guy's Hospital; Olive Gertrude Mary Gray, London (Royal Free Hospital) School of Medicine for Women; Charles Frederick Hacker, King's College; Allen Coulter Hancock, Guy's Hospital; Mary Esther Harding, London (Royal Free Hospital) School of Medicine for Women; Claude Charles Harrison, University of Bristol; John Higgins and Edward Sancton Walls Hirsch, St. Mary's Hospital; Augustine Henry Hudson, St. Thomas's Hospital and Middlesex Hospital; George Batterby Jameson, Victoria University of Manchester; Mildred Archer Jukes, London (Royal Free Hospital) School of Medicine for Women; Mirza Mohammed Khan and Rustam Merwan Kharegat, University College; William Joseph Teil Kimber, St. Thomas's Hospital; William Edward Kingdon, University College; Edward Athol Clarence Langton, St. Bartholomew's Hospital; William Leslie, Charing Cross Hospital; William Howard Lister, University College; Robert John McNeill Love, London Hospital; Helena Rosa Lowenfeld and *†Edith Marjorie Martland, London (Royal Free Hospital) School of Medicine for Women; ‡ Wilfrid Egerton Milligan, St. Thomas's Hospital; Percy James Montgomery, Middlesex Hospital; Lionel Page, University of Bristol; Stylianos George Papadopoulos, St. Bartholomew's Hospital; Thomas Bond Paul, Middlesex Hospital; Alexander Frederic Potter, St. Thomas's Hospital; Richard Amyas Preston and Julian Lionel Priston, London Hospital; Arthur Leslie Hanworth Rackham, Middlesex Hospital; Aneurin Evan Roberts, London Hospital; Theodore Essex Roberts, Guy's Hospital; Henry Ellis Robinson, St. Bartholomew's Hospital; Evelyn Dennis Scott, Guy's Hospital; Ronald Silcock, St. Mary's Hospital; ‡ John Smith Sloper, St. Thomas's Hospital; Margaret Edith Elliott Smith, London (Royal Free Hospital) School of Medicine for Women; Trevor Richard Snelling, London Hospital; Edward Seguier Sowerby, University of Bristol; William Collis Spackman, University of Birmingham; Clifford William Sparks, St. Thomas's Hospital; John Eric Stacey, University of Sheffield; Grace Stapleton, London (Royal Free Hospital) School of Medicine for Women; Elliott John Storer and Clement Kirwan Sylvester, St. Bartholomew's Hospital; Horatio Thomas, St. Mary's Hospital; Ernest Wentworth Wade, University of Bristol; Godfrey Alan Walker, London Hospital; Francis Clark Watson, St. Thomas's Hospital; William Leslie Webb, Guy's Hospital; Edgar William Whiting, Frederick Edward Saxby Willis, and Douglas Henry David Wooderson, St. Bartholomew's Hospital; and Mary Woods, London (Royal Free Hospital) School of Medicine for Women.

* Distinguished in Anatomy. † Distinguished in Physiology.
‡ Distinguished in Pharmacology.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND ROYAL COLLEGE OF SURGEONS OF ENGLAND.—**At the First Professional Examination held on March 28th, 29th, 30th, 31st, and April 1st, the following candidates were approved in the undermentioned subjects:—**

*Chemistry and Physics.*—Joseph Woods Clayton, Adelaide University and London Hospital; Raghunath Ganesh Dani, University College; George Augustus Norman Dod, Westminster Hospital and King's College; Arnold Guy Harsant, St. Paul's School; Arthur Milner Hutchinson, Royal Technical School, Salford; Frank Bernard Jago, Manchester University; Tudor Philip William John, University College, Cardiff; Edward Glyn Jones, Liverpool University; Charles Hardiman Laver, Bedford Modern School; Cyril George Learoyd, St. Thomas's Hospital; Robert Paul Scott Mason, Middlesex Hospital; Ernest Cecil de Mallet Morgan, Guy's Hospital; Arthur Rose-Innes, University College.

*Chemistry.*—John Andrew, South-Western Polytechnic, Chelsea; Alfred Allwright Brown, Birkbeck College; William Barnes Buer, Guy's Hospital; Edmund Sheppard Cuthbert, St. Bartholomew's Hospital; Gauri Dayal, Bombay University; Frank Philip Gilbert de Smidt, London Hospital; Herbert Mervyn Drake, St. Thomas's Hospital; Claude Henry Fischel, Middlesex Hospital; John Fox-Russell, Middlesex Hospital; Luis Hernando Garces, City of London College; Colin Charles Gordon Gibson, Guy's Hospital; Kenneth James Monteith Graham, St. Mary's Hospital; James Alfred Gregory, Manchester University; Carl Gustaf Waldemar Hahr, Polytechnic Institute; Melville St. Clair Hamilton, Charing Cross Hospital; William Norman Harrison, St. Mary's Hospital; Annesley George Lennon-Brown, Westminster Hospital and King's College; José Miguel Madariaga, St. Thomas's Hospital; Warre Harriott Alexander Pratt, Guy's Hospital; Herbert Henry Silley, King's College; and Ismail Zaki, University College.

*Physics.*—William Guy Embleton Allen, St. Bartholomew's Hospital; Geoffrey Thomas Baker, Middlesex Hospital; Reginald Naunton Bates, Liverpool University; Percy Herbert Burton, London Hospital; Arthur Stanley Carter, Middlesex Hospital; Cyril Gould, University College; Joseph Adrian Hart, London Hospital; Edwin Lancelot Hopkins, London Hospital; Henry Barry Hyde, St. Thomas's Hospital; John Robert John, University College, Cardiff; Samuel Durham Lodge, Leeds University; William Dundas McRae, London Hospital; Noel Archibald Scott, St. Bartholomew's Hospital; David Page Thomas, St. Bartholomew's Hospital; and Robert Harvey Williams, St. Bartholomew's Hospital.

*Biology.*—Alan Augustus Adams, London Hospital; Geoffrey Thomas Baker, Middlesex Hospital; Charles Layton Balkwill, Birmingham University; John Behesnilian, Charing Cross Hospital; Hugh Stanford Bryan, London Hospital; William Barnes Buer, Guy's Hospital; Arthur Stanley Carter, Middlesex Hospital; Reginald George Joseph Charlesworth, Charing Cross Hospital; Stephen Walter Coffin, Guy's Hospital; Bernard Crossley-Meates, St. Bartholomew's Hospital; Cyril Lister Curle, Birmingham University; Arthur Thomas Dally, Charing Cross Hospital; Raghunath Ganesh Dani, University College; Alfred Kay Day-Lewis, Guy's Hospital; Cecil Lucas Donne, Middlesex Hospital; Gerald Gordon Drummond, St. Thomas's Hospital; Claude Henry Fischel, Middlesex Hospital; Colin Charles Gordon Gibson, Guy's Hospital; Frederick John Good, London Hospital; Alan Basil Hacking, Middlesex Hospital; Mohammed Hafez, London Hospital; Carl Gustaf Waldemar Hahr, King's College; Brabazon James Hallowes, St. Bartholomew's Hospital; Ernest Alphonse Hardy, Charing Cross Hospital; Arnold Guy Harsant, St. Paul's School; Lancelot Horsley and Charles Henry Housden, Guy's Hospital; Harold Reginald Wessen Husbands, Bristol University; Henry Barry Hyde, St. Thomas's Hospital; Frank Bernard Jago, Manchester University; Wilfred Kilroe, Guy's Hospital; Noel Sigismund Koch, St. Bartholomew's Hospital; Roy Dyson Langdale-Kelham, University College; Cyril George Learoyd, St. Thomas's Hospital; Thomas William Le Mesurier, London Hospital; Sidney John Liddon Lindeman, St. Bartholomew's Hospital; Vernon Edmund Lloyd, Guy's Hospital; Samuel Durham Lodge, Leeds University; George Samuel Bousfield Long, Guy's Hospital; William Ulic Desmond Longford, St. Bartholomew's Hospital; Guyon Lynden-Bell, King's College; Ewart McArd, Middlesex Hospital; John Edward Carbery Maguire, St. Bartholomew's Hospital; Rodney Honor Maingot, St. Bartholomew's Hospital; Archibald Daniel Marston, Guy's Hospital; Robert Paul Scott Mason, Middlesex Hospital; Frank Barwell Matthews, Middlesex Hospital; Ernest Cecil de Mallet Morgan, Guy's Hospital; John Frederick Munton Payne, London Hospital; Reuben Woodland Payne, Charing Cross Hospital; Edward Austin Prichard-Evans, University College, Cardiff; Denys Revell Reynolds, St. Bartholomew's Hospital; Charles Young Roberts, St. Thomas's Hospital; George Cuthbert Robinson, St. Thomas's Hospital; Alan Filmer Rook, Guy's Hospital; Arthur Rose-Innes, University College; John Rowland, St. Thomas's Hospital; William Henry Sarra, London Hospital; Gerald Richardson Sharp, London Hospital; William Walford Salisbury Sharpe, St. Mary's Hospital; John Beville Grenville Skelton, London Hospital; Denys Munro Smith, Bristol University; Frederick Porter Smith, St. Thomas's Hospital; Arthur Sunderland, Charing Cross Hospital; Percival Washington Symons, Middlesex Hospital; David Page Thomas, St. Bartholomew's Hospital; José Victory, Guy's Hospital; Arthur Alward Watkinson, Charing Cross Hospital; Arthur Stewart Westmorland, St. Mary's Hospital; Nathan Judah Wigram, Sheffield University; Robert Harvey Williams, St. Bartholomew's Hospital; James Wiseman, Sheffield University; Harold Ernest Pierpoint Yorke, St. Bartholomew's Hospital; and Ismail Zaki, University College.

**At the Second Professional Examination in Anatomy and Physiology, held on March 30th and 31st, and April 3rd and 4th, 87 candidates presented themselves, of whom 53 were**

approved and 34 were rejected. The following are the names and schools of the successful candidates:—

Wilfred Herbert Alderton, London Hospital; Christian Philip Sidney Allingham, London Hospital; Alan Douglas Anderson, University College; Christian Victor Aserappa, L.M.S. Ceylon, D.P.H. Oxon., Ceylon Medical College; Otto Baier, Liverpool University; Mohammed El Bakry, King's College; Maurice Holdsworth Barton, University College; Arthur Charles Oakley Brown, Birmingham University; Samuel Caplan, St. Mary's Hospital; Thomas Hungerford Cresswell, Middlesex Hospital; David Lloyd Davies, University College, Cardiff; Ralph Marsh de Mowbray, St. Thomas's Hospital; Carl Keating Graeme Dick, St. Mary's Hospital; Albert John Drew, Guy's Hospital; Sidney Ernest Elphick, St. Mary's Hospital; Murray Dudley Evans, London Hospital; Samuel Sowray Greaves, Leeds University; Ernest Richard Gordon Greville, St. Thomas's Hospital; Francis Henry Guppy, St. Bartholomew's Hospital; Thomas Watson Hancock, London Hospital; William Reginald Huleatt Heddy, Middlesex Hospital; Charles Lyon Herklots, B.A. Oxon., Oxford University and University College; Hugh Granville Hockridge, King's College; William Edward Ison, St. Bartholomew's Hospital; Frank Edwin Johnson, London Hospital; Thomas Clatworthy Kidner, Middlesex Hospital; Frank Winter Lawson, Guy's Hospital; Horace Mather, Guy's Hospital; Robert Charles Matson, Guy's Hospital; Charles Harold Medlock, Guy's Hospital; Manalal Maganlal Mehta, L.M.S. Bombay, Bombay University; Alan Lawrence Miller, Birmingham University; Alan Vivian Moberly, Guy's Hospital; Henry Naunton Morgan, University College, Cardiff; Lionel Everard Napier, St. Bartholomew's Hospital; Hubert Frederick Overend, Manchester University; Charles Franklin Pedley, B.A. Cantab., Cambridge University and Guy's Hospital; George Stanley Phillips, University College, Cardiff; Stanley Victor Percy Pill, St. Mary's Hospital; John Precopoulos, B. ès Sc. Paris, Paris University and Charing Cross Hospital; Doulat Ram, Bombay and Manchester Universities; Hugh Rimington, St. Bartholomew's Hospital; Abdel Rahman Sami, Cairo and King's College; Ellis Herbert Sydney Scarr, Manchester University; Frank Sykes, Leeds University; Thomas Reginald Trounce, Guy's Hospital; Jagannath Balkrishna Vaidya, L.M.S. Bombay, Bombay University and University College; Vernon Charles Whitby Vickers, St. Mary's Hospital; George William Watson, Leeds University; George Harvey Duder Webb, University College; Richard Williams, London Hospital; Samuel Wilson, Guy's Hospital; and Arthur Kendall Scott Wyborn, Middlesex Hospital.

At the quarterly examination in Practical Pharmacy held on April 6th and 7th the following gentlemen were approved:—

Francis Balkwill, Manchester University; Richard Shaw de Courcy Bennett, Guy's Hospital; Arthur Vincent Boyall, Charing Cross Hospital; Arthur Bulleid, Guy's Hospital; Terence Campbell Butler, Westminster Hospital; Hugh Gregan Crawford, Reginald Curle; and Andre Constant Labauve d'Arifat, Guy's Hospital; John Dotto, St. Bartholomew's Hospital; Stanley Ernest York Elliott, St. Mary's Hospital; John Chute Ellis, London Hospital; Arthur Geoffrey Evans, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Harold Hugh Fairfax and Montague Albert Farr, Charing Cross Hospital; Charles Michael Forster, B.A. Cantab., Cambridge University and Charing Cross Hospital; Robert Fowle, London Hospital; Albert Julius Fränkersdorff, Guy's Hospital; Edgar Mervyn Grace, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Aylmer Green, private study; Sidney Martin Hattersley, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; William George Helsby, Glasgow Royal Infirmary and private study; William Annesley Holmes and William Sadler Hyde, Guy's Hospital; Howel Gabriel Gwyn Jeffreys, B.A. Cantab., Cambridge University and St. George's Hospital; William Baly Jepson, St. Bartholomew's Hospital; Cornelius Kennedy, Liverpool University; Gerald Struan Marshall, Charing Cross Hospital; Robert Hamilton Miller, M.R.C.V.S., College of Surgeons, Edinburgh; Godfrey William Mitchell, B.A. Cantab., Cambridge University and St. George's Hospital; Cuthbert John Nicholson, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Joseph Owen and Robert Charles Parry, London Hospital; Michael Gladstone Pettigrew, Sheffield University; Richard Cruickshank Poyser and George Lionel Preston, Guy's Hospital; Stanley Owen Rashbrook, London Hospital; Noel Archibald Scott, St. Bartholomew's Hospital; Reginald Sherman, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; John Godfrey Smith, St. Bartholomew's Hospital; Geoffrey Stanger, B.A. Oxon., Oxford University and St. Bartholomew's Hospital; William Henry Arthur Douglas Sutton, Guy's Hospital and private study; David Page Thomas, St. Bartholomew's Hospital; Philip James Watkin, Guy's Hospital and private study; William Cuthbert Whitworth, Guy's Hospital; John Helby Wilkinson, London Hospital; Robert Waller Willcocks, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; James Ernest Studholme Wilson, London Hospital and private study; and Miles Astman Knight Wood and Harold Ernest Pierpoint Yorke, St. Bartholomew's Hospital.

## ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At the Preliminary Science Examination for the Licence in Dental Surgery, held on March 28th, 29th, and 31st, the following candidates were approved in the subjects indicated below:—

*Chemistry and Physics.*—Alexander Douglas Ball, Charing Cross Hospital; James Millard Barnes, Municipal Technical School, Brighton; Roland Harry Bebb, Municipal Institute, Walsall; Ralph Boutwood, Guy's Hospital; Alfred Herbert Bowes, High School, Middlesbrough; Louis Charles Cohen, University College, Cardiff; Thomas Percy Cooper, Guy's Hospital; Ulysses James Garfield Dancer, Birkbeck College; Ernest Francis Doubleday, Birmingham University; John William Edgar, Middlesex Hospital; Donald Hugh Hoggard, Grimsby Municipal College; Norman Harold Kettlewell, University College of North Wales, Bangor; Frank Wentworth Lawrence, Guy's Hospital; William George Lloyd, Guy's Hospital; George King Moore, Guy's Hospital; Frank Henry Parsonage, Royal Technical Institute, Salford; Francis Rupert Rice, Municipal Technical College, Hull; Leslie Bacchus Smith, Middlesex Hospital; Frederick Edward Alan Thorman, Birmingham University; Vernon John Thurston, Dulwich College; Clement John Lethbridge Wells, Middlesex Hospital; Roger Gilbert Wilshere, Wyggeston School, Leicester; Leonard Duncan Windemer, Guy's Hospital; and Paul Bernard Wood, Charing Cross Hospital.

*Chemistry.*—Leslie Alabone, Brighton Municipal Technical College; Harold Beddoes, Birmingham University; Herbert Cartman, Bury Grammar School; Ernest Archibald Dawson, Birkbeck College; and Roy Oswald Shilton, Birmingham Municipal Technical College.

*Physics.*—Kevern Batten, Bristol University; William Sutton Campbell, University College, Cardiff; Wilfrid Arthur Culverwell, Bristol University; Herbert Gee, Holt School of Science, Birkenhead; Benjamin Micklethwaite, Middlesex Hospital; Arthur Helmuth John Miller, Charing Cross Hospital; William Greaves Pullan, Leeds University; and Sydney Stamp, Central Technical School, Leeds.

At the quarterly meeting of the Council, held on April 6th, the Licence in Dental Surgery was conferred upon Bernard John Geekie, of the Middlesex and National Dental Hospitals, who has now complied with the by-laws of the College.

## SOCIETY OF APOTHECARIES OF LONDON.

At the Primary Examination, Parts I. and II., held recently, the following candidates passed in the subjects indicated:—

*Materia Medica and Pharmacy.*—R. Fowle, London Hospital; C. Kilroy Jones, St. Mary's Hospital; J. E. Kitchen, Manchester; and J. E. Taylor, Leeds.

*Anatomy.*—H. S. C. Hooper, London Hospital; J. E. Kitchen, Manchester; and L. C. Smith, London Hospital.

*Physiology.*—H. S. C. Hooper and L. C. Smith, London Hospital; A. H. Taymour, Guy's Hospital; and A. S. Womersley, Manchester.

## LONDON SCHOOL OF TROPICAL MEDICINE.

At the examination at the end of the thirty-fifth session (January–April, 1911) the following students were successful:—

*H. M. Hanschell, *G. G. Butler (Colonial Service), *Captain H. Crosale, I.M.S., *C. J. Wilson, *A. J. R. O'Brien (Colonial Service), *J. B. Alexander (Colonial Service), *M. B. Hay (Colonial Service), *Captain C. C. Shaw, I.M.S., *G. R. H. Chell (Colonial Service), E. J. Wyler, Major S. Hunt, I.M.S., F. Standish, A. F. Kennedy (Colonial Service), E. E. Witt, W. H. Scott, J. Santamaria Martinez, and A. J. M. Crichton (Colonial Service).

* With distinction.

## UNIVERSITY OF LIVERPOOL.

The Diploma in Tropical Medicine has been awarded to the following:—

B. Blacklock, C. C. Iles, A. Ingram, T. Kirkwood, B. Knowles, G. M. B. Liddle, W. W. Mackarell, R. R. Murray, K. A. Rao, J. A. Sinton, B. S. Tarapurvalla, and W. M. Woods.

## UNIVERSITY OF GLASGOW.

The following have passed the First Professional Examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (B., botany; Z., zoology; P., physics; C., chemistry):—

Ismail Abdurahman (B., Z., P., C.), Robert Aitken (Airdrie) (Z. C.), James Mair Anderson (Z.), John Anderson (B.), Andrew Duffield Blakely (B.), John Buchanan (B., Z.), John Cameron (P.), John Munro Campbell (Z., C.), William Campbell (Z., C.), Moses Wolffe Cantor (Z., C.), Alfred Mackenzie Clark (Z., C.), William Combe (Z., C.), John Connal (Z., P.), Walter Gow Cook (Z., C.), William Cunningham (Z., C.), George del Pino (Z., C.), Jacobus Johannes de Waal (Z.), Ronald Stevenson Dickie (C.), Alexander Hogg Donaldson (Z., C.), Harry Taylor Findlay (Z., C.), Robert Forbes (Z., C.), Allan Dumbreck Fraser, M.A. (Z.), George John Fraser (B., Z., P.), Ian Maclean Frazer (B., P.), Robert Frew, B.Sc. (Z.), Thomas Ronald Fulton (B., C.), Walter Weir Galbraith (B., P.), David Gould Gardiner (Z., C.), Leonard Woodburn Gemmell (B.), John Albert Frank Gibson (P.), John Gilchrist (B., Z., P., C.), Norman William Gilchrist (B., Z., C.), Colin Campbell Blair Gilmour (Z., C.), John Glaister (Z., C.), William Gordon (Z., C.), Ronald Thomson Grant (Z., C.), David Cochrane Hanson (P.), Arnot Campbell Hepburn (C.), Tom John Honeyman (Z., C.), Theodore Paton Hutchison (B., C.), George Kirkhope (Z., C.), William Fulton Kivlichan, M.A. (B., P.), John Crawford Knox (Z., P.), Robert Kyle (C.), Robert Milne Lang (Z., C.), Hugh Brown Lawrie (Z.), Alfred Thomas Logan (Z., C.), Hugh Lawrence M'Cormick (C.), Joseph M'Culloch (Z., P.), Duncan Fraser Macdonald (B., P.), Robert William MacDonald (C.), Donald John Macdougall (P.), Donald Kerr MacDougall (Z., C.), David M'Farlane (B., Z., P., C.), John Mandeville Macfie (Z., C.), Joseph Patrick M'Greehin (B., P.), Alexander Fraser M'Intosh (Z., C.), James Murdoch Mackay (B., P.), David Mackie (C.), Joseph Allan MacLean (Z., P.), Malcolm Bonar Macleod (Z., C.), Donald Macphail Macmillan (C.), David M'Neill (C.), Eric John Macphail (B., Z., P., C.), William Leslie Marshall (Z., C.), William Martin (C.), John Campbell M'Intyre Matheson (Z., C.), John Spence Meighan (Z.), Thomas Duff Miller (Z., C.), John Desmond Milligan (Z., C.), Peter Orr Moffat (B., Z., P.), Percival John Moir (P.), Noah Morris (Z., C.), Hugh Adam Munro (B., Z., C.), John Hughes Murray (C.), James Alphonsus O'Connor (Z.), Arthur William

Panton (Z., C.), John Roberts Pate (C.), James Alexander Paterson (C.), William James Poole (Z., C.), William Burns Primrose (Z., P.), James Richardson (Z., C.), Kenneth M'Alpin Ross (C.), William Jack Scade (Z., C.), Seymour Cochrane Shanks (Z., C.), James Tait Smith, M.A. (Z.), Andrew Stenhouse (C.), Douglas Stuart Stevenson (C.), Charles Hugh Stewart (B.), Robert Sutherland Strachan (Z., C.), Robert Taylor (Z., C.), Cecil Raymond Tytler Thompson (Z.), Donald Fraser Sage Thomson (Z., P.), Robert Mitchell Thomson (C.), Robert Taylor Todd (Z., C.), Adrian Johannes van der Spuy (Z., C.), William Semple Wallace (C.), Robert Richmond Waters (Z., C.), John Dalgliah Watson (C.), William James Cunningham Watt (C.), James Gordon Wilson (C.), Robert James Wilson (Z., C.), Thomas M'Skimming Wilson (P., C.), Gavin Young (B., P.), and Thomas Young (B., Z., P., C.).

*Women.*—Agnes Elizabeth Cooke (B., Z.), Jane Beattie Davidson (C.), Leah Fajvelevna Goetz (Z., C.), Dorothy M'Cubbin (Z., C.), Margaret Jane Maclachlan (Z., C.), Effie Cowan M'Vie (Z.), Gladys Montgomery (B., P.), Sarah Naismith (Z.), Mary Anderson Noble (Z., C.), Isabel Mary Sinclair (B., P.), Margaret Ann Hendry Stewart (C.), Isabel Stirling Thomson (Z.), and Mary Ferguson Wood, M.A. (B., P.).

**The following have passed the Second Professional Examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (A., anatomy; P., physiology; M., materia medica and therapeutics):—**

Douglas Kinchin Adams, M.A. (A., P.), James Angus (P.), Henry Stanley Banks, M.A. (A., P.), Richard Archibald Barlow, B.Sc. (M.), Abraham Blashky (M.), John Smith Knox Boyd (A., P.), William Adam Brechin (A., P., M.), David Peebles Brown (A., P., M.), Robert Archibald Brown (A.), James Law Brownlie (P., M.), Edmund Tytler Burke (M.), James Wilson Burton (P., M.), James Alexander Chrystie (M.), Benjamin Cohen (A., P.), Wallace MacCallum Conley, M.A. (A., P., M.), John Connell (A., P., M.), George Gibson Cooper (A., P.), Nathaniel Crichlow (A., P., M.), Lawrence Crombie (A., M.), Walter Thompson Currie (M.), George Dalziel (M.), William Cameron Davidson (M.), Gabriel Daniel de Kock (M.), Alexander Dick (A.), William Campbell Fleischmann (A.), James Bryan Fotheringham (M.), William Fotheringham (A., P.), James Fraser (P., M.), William Fraser (A.), George Gordon (A.), Ian Grant (A., M.), James Lochhead Gregory (A., P., M.), James M'Farlane Grier, M.A. (A.), Peter Henderson (M.), William John Henry (A., P., M.), George Hislop (A., P., M.), William Hornsby (A., P., M.), William Muir Howells (A., P., M.), Douglas Macinnes Hunter (A., P., M.), John Ferguson Hutton, M.A. (P., M.), Thomas Pollock Inglis (P.), William Joseph Brown Lavery (M.), Alexander Lindsay (M.), George Smith Livingstone (A., P.), Crawford Lundie (M.), Douglas M'Alpine (A., P., M.), James Learmont M'Bean (A., P., M.), Peter Alexander M'Callum (A., P., M.), John Aloysius M'Connachie (A., P.), James Walter M'Donald (A.), John M'Ghie (P.), John MacInnes (A., P., M.), Donald Mackinnon (A., P., M.), James Robertson Cowper Mackintosh (A., P.), Kenneth Norman MacLean (A., P.), Robert M'Lean (A., P., M.), Neil Macleod (M.), Robert Martin M'Minn (A., P.), Ewen Stewart Macphee (P.), William Ebenezer Maitland (A., P., M.), Osborne Henry Mavor (A.), Thomas Spence Meighan (P.), Kenneth Duncan Murchison (P.), Michael Murphy (A.), Thomas Murray Newton (A., P., M.), Robert Parker (A., P.), James Purdie (P.), Angus M'Innes Ramsay (A., P., M.), Robert Ray (M.), David Reid Eccles Roberts (A., P.), Edwin Robertson (A., P., M.), Frank Morton Robertson (A., P., M.), George William Ronaldson (M.), Archibald Watson Russell (M.), Neil Islay Sinclair (P., M.), David Smith (A., P., M.), William Robertson Snodgrass, M.A. (P.), Ronald Stewart (A., P.), William Patrick Andrews Stewart (A.), Ian Dishart Suttie (A., P., M.), George Taylor, M.A. (M.), Ernest Graham Young Thom, M.A. (M.), Robert Bruce Wallace (A., P., M.), Henry Currie Watson (P.), James Cairns Watt (A., P., M.) Matthew White, M.A. (M.), William Herbert Nairne White (A., M.), Frederick John Whitelaw (A.), James Whiteside (M.), and Andrew Morton Young (A., P.).

*Women.*—Norah Maud Aden Allan (A., P., M.), Cecilia Smail Turnbull Anderson (A.), Janet Rankine Anderson (A). Mary Pringle Hislop (A., P.), Jane Kerry M'Elroy Hunter (A., P.), Mary Anne Kirk (A., M.), Sarah Anderson Jamieson Rankine (A., P.), Marion Thompson (A., P.), and Josephine Adelaide Woods (A., P.).

**The following have passed the Third Professional Examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (P., Pathology; M., Medical Jurisprudence and Public Health):—**

William Larmour Anderson (P., M.), Johannes Gerhardus Becker (P., M.), Samuel Blumenfeld (P.), Adam Brown (P., M.), William Brown (P., M.), John Scouler Buchanan (P., M.), Norman Cameron (P.), John Humphrey James Victor Coats (P., M.), George Cochrane, M.A. (M.), Robert Craig, M.A. (P.), Daniel Augustine Cush (P., M.), Alexander Hugh Davidson (P., M.), William Tennent Gairdner Davidson (P., M.), James Henry Dible (P.), John Dickie (P., M.), William Beatson Drummond (P., M.), Alexander Moffat Dunlop (P.), John Maitland Forsyth (P., M.), William Forsyth (P. M.), John Erskine Fyfe (P., M.), John Joseph Gibb (P.), Alexander Muir Gibson (P., M.), Alexander Glen (P., M.), Leopold Glushak (P.), John Alexander Harper, M.A. (P., M.), Alexander Gibson Henderson (P.), Andries Johannes Joubert (P.), Charles Joseph Kirk (M.), Robert Patrick Archibald Kirkland (P., M.), John Finlayson Lang, M.A. (P., M.), Frank Whitwall Kinnear Lawrie (P., M.), Robert Aim Lennie (M.), Norman Veitch Lothian, B.Sc. (P., M.), Crawford Lundie (P., M.), James Ronald M'Curdie (P., M.), Charles Aloysius M'Guire (P., M.), Guy Dalzell M'Lean (P., M.), Murdoch Hugh M'Leod (P.), John Malcolm Macpherson (P., M.), John Henry Magoveny (P.), Thomas Martin (P., M.), William Montgomery (P.), Andrew Neilson (P.), John Boyd Orr, M.A., B.Sc. (P., M.), John Clark Pyper (P., M.), David William Reid (P.), John Ritchie Richmond Ritchie (P.), Alfred Leopold Robertson (P.), James Hinton Robertson (P., M.), James Inglis Robertson (P.), Archibald Watson Russell (P.), Samuel Rutherford (P., M.), Frank Shearar (P., M.), John Finlayson M'Gill Sloan (M.), Hendrik Cornelius van der Wat Smit (P.), James Anstruther Smith (M.), Malcolm Sommerville (M.), Roderick Alexander Steven (M.), Graham Stevenson (P., M.), John Alexander Stewart (P.), Ronald Stewart (P., M.), William Taylor (P., M.), John Cameron Thomson Teggart (P., M.), Carel Johannes van Lingen (P., M.), Angus Walker (P.), Thomas Walmsley (P.), Tom Waterhouse (P.), George Milroy Whish (P., M.), Egerton Carl White (P., M.), Thomas Whitelaw (M.), William Whitelaw (P., M.), Archibald Wilson (P., M.), William Brockie Wilson (P.), William Ferguson Wood (P., M.), and Walter Percy Yates (M.).

*Women.*—Jane Malcolm Davidson (P., M.), Isabel Inglis (P.), Maggie Logan Kirkwood (P., M.), and Janet Morris Walker (P.).

**At the recent professional examinations for the degrees of M.B., Ch.B., the following candidates passed with distinction in the subjects indicated:—**

*First Examination.*—In Zoology and Chemistry: George Kirkhope. In Botany: Agnes Elizabeth Cooke. In Zoology: John Buchanan, Allan Dumbreck Fraser, M.A., Robert Frew, B.Sc., John Crawford Knox, and Robert James Wilson. In Physics: Joseph M'Culloch and David M'Farlane. In Chemistry: Ismail Abdurahman, William Cunningham, George del Pino, Alexander Hogg Donaldson, Harry Taylor Findlay, David Gould Gardiner, Colin Campbell Blair Gilmour, Ronald Thomson Grant, Robert Milne Lang, Alfred Thomas Logan, John Mandeville Macfie, William Leslie Marshall, John Desmond Milligan, Arthur William Panton, Adrian Johannes van der Spuy, William Semple Wallace, and Thomas Young.

*Second Examination.*—In Anatomy: John Smith Knox Boyd, William John Henry, and Robert M'Lean. In Physiology: Douglas Kinchin Adams, M.A., Norah Maud Aden Allan, William Muir Howells, William Ebenezer Maitland, Thomas Murray Newton, James Purdie, and William Robertson Snodgrass, M.A.

*Third Examination.*—In Pathology and in Medical Jurisprudence and Public Health: William Beatson Drummond. In Pathology: Thomas Martin. In Medical Jurisprudence and Public Health: Charles Joseph Kirk.

**The following have satisfied the examiners in the Fourth (Final) Professional Examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.):—**

James Browning Alexander, James Wallace Anderson, Donald Arbuckle, Agnes Barr Auchencloss, Charles Averill, Christina Barrowman, Marie Alexina Annette Beard, Alexander Hogg Brown, James Turner Brown, James Buchanan, Donald Downie, Robert Findlay, Thomas Loudon Fleming, Thomas Scoular Fleming, Hugh Forrest, Thomas Lochhead Fraser, David Thomas Crichton Frew, Andrew Garvie, John Gibson, M.A., Andrew Smith Hannay, William Johnstone, James David Mackinnon, William MacMurray, Stephen Anderson MacPhee, George Hanson M'Robert, John Pearson M'Vey, Malcolm Manson, M.A., Frank William Martin, Robert Stewart Miller, John Mowat, Hugh Loudon Neil, Arthur Poole, Arthur Stanley Richmond, Barbara Grace Rutherfurd, John Livingstone Scott, John Ferguson Smith, M.A., William Sneddon, John Stewart, John Torrance Weir Stewart, Thomas Louis Grenet Stewart, Barbara Sutherland, M.A., Alexander Gold Waddell, James Douglas Walker, Alexander Guthrie Semple Wallace, George Wallace, James Williamson (Holytown), Alexander Stewart Wilson, George Jackson Wilson, Fergus Hay Young, M.A., and John Young.

**The following passed with distinction in the subjects indicated:—**

In (*a*) Surgery and Clinical Surgery, (*b*) Practice of Medicine and Clinical Medicine—John Stewart; in (*a*) Practice of Medicine and Clinical Medicine, (*b*) Midwifery—John Gibson, M.A.; in Surgery and Clinical Surgery—William MacMurray; in Practice of Medicine and Clinical Medicine—James Wallace Anderson, Barbara Sutherland, M.A.; in midwifery—James Turner Brown, John Ferguson Smith, M.A., and Fergus Hay Young, M.A.

UNIVERSITY OF ABERDEEN.—At the graduation ceremony held on April 5th the following among other degrees were conferred:—

*Honorary Doctor of Laws* (*LL.D.*).—Arthur Robertson Cushny and Arthur Keith.

*Degree of Doctor of Medicine* (*M.D.*).—Donald Buchanan, James MacFarlane, John Hay Moir, Robert Williamson Asher Salmond (Honours), and Douglas Wood.

*Degrees of Bachelor of Medicine* (*M.B.*) *and Bachelor of Surgery* (*Ch.B.*).—Second-class Honours: James Davidson and Harry James Rae. Ordinary Degree: Ernest Paul Duncan, Robert Morrison Easton, James Fettes, James Reston Gardiner Garbutt, Mabel Hector, James Hunter, George Leggat, Duncan Miller, John Marsters Mitchell, Edmund Hugh Moore, Alexander Smith, William George Thomson, James Williamson Tocher, and William Miller Will.

*Diploma in Public Health.*—Francis William Falconer, William Innes Gerrard, Robert William Macpherson, and Roland Sinclair.

ROYAL SANITARY INSTITUTE.—On Friday, April 21st, in the town-hall, Colchester, a discussion will take place on the Control of Pulmonary Tuberculosis, to be opened by Dr. W. F. Corfield, medical officer of health, Colchester. The chair will be taken at 7.30 P.M. by Dr. Louis C. Parkes, chairman of the council of the Institute, and general discussion is invited. On Saturday, April 22nd, a visit will be made in the morning to the Castle and Museum, and in the afternoon to the gathering grounds and waterworks at Lexden.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: MUSEUM DEMONSTRATIONS.—The third annual series of demonstrations of specimens contained in the Museum of the Royal College of Surgeons of England will be given in the theatre of the College in Lincoln's Inn-fields, by Professor Arthur Keith, conservator, and by Mr. S. G. Shattock, pathological curator. The demonstrations are intended for advanced students and medical practitioners. Professor Keith will lecture on April 21st on the Various Forms of Spina Bifida; on April 28th on Meningocele and other Congenital Deformities of the Brain and Membranes; and on May 5th on the Conditions: Hydrocephaly, Microcephaly, and Oxycephaly. Mr. Shattock will lecture on April 24th on Actinomycosis and Leprosy; on May 1st on the Biology of Malignant Growths; and on May 8th on Diseases of Voluntary Muscle, Cartilage, Bursæ. The demonstrations will commence each day at 5 P.M.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

*Bleached Flour.*

CONSIDERABLE interest has awaited the publication of the Local Government Board reports on the bleaching of flour and other points connected with the nutritive value of bread. Two reports have now been presented to Parliament, one on the bleaching of flour and the other on the presence of calcium sulphate in baking powder and self-raising flour.[1] In the first report Dr. J. M. HAMILL writes on the bleaching of flour and the addition of so-called "improvers" to flour, whilst Dr. G. W. MONIER-WILLIAMS writes on the chemical changes produced in flour by bleaching. Dr. HAMILL'S report contains many conclusions which will invite public interest and discussion. In particular, his conclusions as to the effect of bleaching on flour are so important that it is desirable to quote them in his own words:—

"In reviewing the somewhat contradictory statements as to the effect of bleaching on flour," he writes, "it appears possible to arrive at certain conclusions. It seems probable that bleaching, when carefully carried out, produces no appreciable effect upon the baking qualities of flour. It may be true that by mere bleaching it is impossible to make the lowest grades of flour equal in appearance to the highest grades, but there can be no doubt that bleaching is capable of improving the colour and therefore the commercial value of the lower grades of flour. This is borne out by the common practice of bleaching the whole output of the mill, both high and low grades; also by statements of manufacturers of bleaching apparatus that bleaching improves both high and low grade flours, and enables the miller to produce 'a longer length of patents,' and further by the fact that some millers bleach only their lower grades of flour. Bleaching would seem to improve, from the miller's point of view, the colour of the whole output of the mill, although the improvement may be less marked in the lower than in the higher grades which are practically free from offal. That this improvement represents a pecuniary gain to the miller is evident from the longer patents—i.e., the larger percentage of high-grade flour—which can apparently be obtained as a result of bleaching. This advantage must be remembered in connexion with the assertion that the price obtainable per sack is not increased by the bleaching process. It is probable that bleaching is of assistance in maintaining uniformity in the appearance of flour milled from different wheats, but at the same time it enables the miller to use cheaper wheats and to transform what would otherwise be a dark-coloured cheap flour into a whiter, higher-priced article, the gain due to the enhanced price going to the miller. It is said that a saving of 6*d.* to 1*s.* per sack may thus be effected by the miller. Bakers, importers, and others judge flour largely on its appearance and are accustomed to associate whiteness with high commercial quality and with care and attention in the choice and milling of the wheat. Owing to bleaching, colour is no longer a trustworthy criterion, and a purchaser may be supplied with an article of a different quality from that which he believes he is receiving. Millers are, of course, aware of this, and show a disinclination to inform their customers that their flour is bleached. While plants for bleaching are possessed by a limited number of millers the latter may undoubtedly be at an advantage over many millers not so circumstanced, so long as bakers and the public continue to attach importance to the whiteness of flour regardless of the manner in which the whiteness is produced. Should the practice become universal, however, and bleaching become an additional process which all millers have to employ, this advantage would disappear. There seems no sufficient evidence that mere bleaching can counteract defects in flour due to unsoundness of the wheat from which it was milled."

Dr. HAMILL also deals at considerable length with so-called "flour improvers." "The protein content of flour is," he says, "an important matter from the standpoint of nutrition, especially where bread enters largely into a diet. Flour from weak wheats, which are generally poor in gluten, contains less protein than flour from strong wheats which are rich in gluten. But by the use of 'improvers' flour from weak wheat is made to simulate flour from a stronger wheat, although as regards protein content it is inferior to the flour which it imitates. With regard to other substances which have been represented as 'improvers,' it may be said that the indiscriminate addition of powerful chemical substances, such as hydrofluoric acid, phosphorus pentachloride, and the oxides and sulphides of phosphorus to flour, is most dangerous. At the present time many millers are unaware of the nature and composition of the 'improvers' which they add to flour, and are content with the assurance of chemical manufacturers that the preparations offered to them constitute, in all respects, desirable additions to flour. If the use of 'improvers' became general, there can be little doubt that manufacturers of chemical products would persuade millers to treat their flour with preparations often of a questionable nature, sold under attractive and, possibly, misleading names. There can be no doubt also that competition amongst chemical manufacturers would eventually result in millers being supplied with low grade articles liable to contain dangerous impurities. It must also be remembered that the addition of foreign substances may not be limited to the miller, but that each person through whose hands flour passes (e.g., the flour factor and the baker) may add to it a different substance or more of what the miller has already added. In this way flour, when it reaches the consumer, may have departed considerably from its original state of purity. The increasing activity which is now being displayed in the use of different articles as additions to flour must be regarded with considerable apprehension. It does not appear desirable that such an indispensable food stuff as flour, the purity and wholesomeness of which are of first importance to the community, should be manipulated and treated with foreign substances, the utility of which, from the point of view of the consumer, is more than questionable."

[1] Reports to the Local Government Board on Public Health and Medical Subjects. New series. Nos. 46 and 49. London: Darling and Ltd. Cd. 5613 and 5614.

## HOUSE OF LORDS.

WEDNESDAY, APRIL 5TH.

*Eyesight Tests in the Mercantile Marine.*

Lord MUSKERRY called attention to the tests in colour and form vision to which candidates for certificates as master or mate in the mercantile marine were at present subjected. He said that of late years the eyesight tests as administered by the Board of Trade had raised a storm of hostile criticism. Officers in the mercantile marine were almost all emphatically of opinion that the present tests were miserably inefficient and led to grievous injustice. Under these tests a man might fail whose colour vision and form vision were sound, but on the other hand it was contended that the tests admitted of men with dangerously faulty sight qualifying for certificates. Great satisfaction was expressed when it became known that the Board of Trade had appointed a Departmental Committee to inquire into and advise upon these tests, but that satisfaction gave way to dismay when the composition of the committee was announced. The present eyesight tests, which were adopted on the recommendation of a special committee of the Royal Society, had been condemned root and branch by many people whose opinion ought to command the greatest weight and respect. Those composing the new committee should not have in the smallest degree any connexion either with the Royal Society or the Board of Trade. Out of the new committee there were five or six members who were Fellows of the Royal Society. The committee could not command the confidence of those connected with shipping. There was a strong suspicion that efforts were being made to whitewash the present tests, and the action of the Board of Trade in respect of them. He brought the matter forward in the interests of life at sea and in the interests of those who commanded merchant ships, and were so badly off in way of representation in Parliament. He suggested that before the recommendations of the committee were acted upon they should be submitted to a committee of independent and impartial men. The matter had excited considerable anxiety in the mercantile marine.

Lord HAMILTON of DALZELL (who replied on behalf of the Board of Trade) said that he could not enter into a discussion on the merits or demerits of the eyesight tests for the reason that the President of the Board of Trade had referred the whole question to a Departmental Committee. Until the Departmental Committee had reported any discussion would be rather unprofitable and perhaps undesirable. The terms of reference covered the whole field of inquiry, and he was sure that when the committee had reported, the President of the Board of Trade would review the matter most carefully. In regard to the composition of the committee his right honourable friend had no ulterior motive, and he was not guilty of any deep-laid scheme. He had appointed the committee to advise him on a highly scientific and technical matter, and his only object was to ascertain the best course for him to follow. The committee was a very strong one, and the President of the Board of Trade believed it to be thoroughly impartial and that it would be able to give him the best possible advice on these matters. Reference had been made to the fact that some half a dozen gentlemen on the committee belonged to the Royal Society, and the noble lord appeared to think that members of the Royal Society might be prejudiced in the matter because the present sight tests were founded upon the report of a committee of the Royal Society which sat 20 years ago. That was not an argument which would weigh very much with the House, particularly when their lordships considered that science was always advancing.

The members of the Royal Society were not the least likely to think that there was any imputation on that body if what was thought best 20 years ago was not now found quite up to date.

The subject then dropped.

## HOUSE OF COMMONS.

### WEDNESDAY, APRIL 5TH.

*Medical Attendance on Officers at Tidworth.*

Major HENDERSON asked the Under Secretary of State for War whether in view of the non-existence of quarters for officers quartered at Tidworth, necessitating their residing at Salisbury and Andover, the same facilities for medical attendance by civil practitioners might be granted to officers residing at Andover as to those residing at Salisbury.—Colonel SEELY wrote in reply: Under the regulations, officers are only entitled to medical attendance at stations such as Salisbury where there is a regular or civilian medical practitioner employed for attending on the troops, and then only if their residence is within the prescribed mileage limit. I regret to say that it is impracticable to make any exception to this rule at present without involving considerable extra expense for which no funds are available. But the matter shall be carefully considered.

### WEDNESDAY, APRIL 6TH.

*The Water-supply of Caherciveen.*

Mr. BOLAND asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that the people of Caherciveen for many years had been clamouring for an improved water-supply, the present dearth of water being a danger to the public health; that the Local Government Board on Dec. 19th, 1909, held a sworn inquiry into the matter, and as a result of the inquiry gave notice to the rural district council that it would put into force its compulsory powers under the Public Health Act unless the council should proceed at once to provide a water-supply; whether he was aware that on Dec. 13th, 1910, the Local Government Board issued a sealed order to the rural district council defining the area of charge, and that, though the council had laid the plans of Mr. Hickson, C.E., before the Local Government Board and requested that body to sanction a loan, nothing had since been done; and could he say when serious action would be taken in the matter, in view of the approach of the summer months and the failure of the water-supply, which would be inadequate during the summer months.—Mr. BIRRELL replied: The facts are as stated in the question, except that the date of the default inquiry was Dec. 16th, not Dec. 19th, 1909. The plan of the reservoir has been received by the Local Government Board, but the rural district council has not yet submitted its application for a loan, although reminded on March 14th that it should do so.

*Plague in India.*

Mr. KEIR HARDIE asked the Under Secretary of State for India whether he could state the sum budgeted for by the Government of India for dealing with the plague which was now ravaging certain districts.—Mr. MONTAGU replied: Provision for plague expenditure and for other sanitary and medical charges is made in the Indian Estimates under the head "medical," for which a sum of £1,301,600 has been allotted. I am unable to give the estimate for plague expenditure separately. In addition to the provision made in the public accounts considerable sums are expended on account of plague by district boards and municipalities. In 1908–09 recurring grants aggregating £200,000 a year were made to the provincial governments by the Government of India for expenditure on sanitary improvements with special reference to the prevention of plague, and in 1910–11 non-recurring grants aggregating £380,000 were made for the same purpose.

Mr. KEIR HARDIE further asked whether he was aware that the increase in mortality from plague during the cold season was due to the fact that people were then driven indoors to sleep in their plague-infested huts; and whether the Government contemplated making financial provision for the erection of sanitary houses in health camps at each of the infested districts.—Mr. MONTAGU answered: The increased prevalence of plague in certain parts of India at the present time of the year is believed to be due to the fact that this is the season of greatest prevalence of rats and rat fleas. It is a well-recognised measure of precaution that on the first sign of the presence of plague the residents should evacuate their dwellings. The Government and the local authorities encourage and assist them to do this by the supply of tents and hutting materials, by erecting temporary dwellings, by providing guards for the vacated houses, and by money rewards. Expenditure on this account is included in the grants mentioned in my answer to the honourable Member's previous question. Special grants have also been made to local governments by the Government of India for the purpose of improving general sanitary conditions, including the housing accommodation of the population.

*The Milk-supply of North-Eastern Towns.*

Mr. ORDE-POWLETT asked the President of the Local Government Board whether, seeing that the medical officer of the Local Government Board, in his annual report for 1909–10, stated that in Middlesbrough and the towns of the North-East of England no effective pressure was put upon the producer of milk of abnormally poor quality to improve the quality of his product, he would undertake to communicate at an early date to the secretary of the Darlington Farmers' Protection Association, which was the organisation of the dairy-farmers throughout the area from which the milk-supply of these towns was drawn, a detailed statement of the methods which Dr. Buchanan and the inspection staff of the Medical Department of the Local Government Board favoured as likely to prove effectual in preventing a well-managed herd of dairy cows from giving at any time milk below the standard set up by the Sale of Milk Regulations, 1901.—Mr. BURNS wrote in reply: I will confer with the Board of Agriculture and Fisheries as to the suggestion which the honourable Member makes.

*Bleached Flour.*

Mr. SUTTON asked the President of the Local Government Board whether he was aware that the American Government prohibited the bleaching or adulteration of flour for consumption in the United States as being contrary to the laws relating to the sale of food and drugs, but at the same time allowed American millers to bleach or adulterate flour for export to this country; and would he state what steps, if any, were being taken to prevent adulterated flour, which was declared to be injurious to the health of the citizens of the United States, being landed in this country.—Mr. BURNS furnished the following written reply: I am aware of the provisions of the American law on this matter. A report by one of my inspectors has been presented to Parliament and will be printed immediately. The question of what action, if any, is needed for the protection of consumers will receive my consideration.

*Meat Extracts.*

Mr. CRUMLEY asked the President of the Local Government Board whether he could give the names and the number of firms in Great Britain engaged in the manufacture of meat extracts and where they were situated; whether he could say if inspectors belonging to his Department regularly inspected those factories to see that sound meat, and meat only, was used in the manufacture; was there any register kept of the number of cattle slaughtered for the production of these extracts.—Mr. BURNS (in a written answer) replied: I am not able to supply the information indicated in the first part of the question. So far as I am aware, these meat extracts are not prepared from meat in this country. Inspectors from my Department do not inspect the factories. Under the Public Health Acts the duty of inspecting articles of food intended for sale for human consumption rests on the local authority. I am not aware whether any register is kept of the number of animals slaughtered for the production of meat extracts and of the number of carcasses used in their manufacture.

### MONDAY, APRIL 10TH.

*Chinese Pork and Plague.*

Mr. BURNS (President of the Local Government Board) informed Mr. FELL that according to the information that he had received the shipments of pork now being made to this country all came from that part of the Yangtse Valley from which most of the pigs had hitherto been derived which were sent to this country in the form of pork. No plague had been reported from this part of China during the present epidemic.

Mr. FELL: Having regard to the fact that pork is coming from China and the plague is raging there, will the right honourable gentleman get a further report from the consul?—Mr. BURNS: I am willing to consider that question; but I am in a position to say that we are hoping to send one of the Local Government Board doctors, who is at present in China, to the place where the pigs are bred and this pork is prepared.

An HONOURABLE MEMBER: Is there not an outbreak of the disease in this district?—Mr. BURNS: Not to my knowledge. It is only right that the honourable gentleman should know that the plague is not nearer than 800 or 1200 miles from the spot the pigs come from.

*Measles in Poplar and Hampstead.*

Mr. LANSBURY asked the President of the Local Government Board whether he was aware that 86 children died in the borough of Poplar suffering from measles during the four weeks ending April 1st; that the parish of Bromley alone accounted for 45 of these deaths, while in Hampstead only 3 children died from this disease; that the general death-rate of Hampstead and Bromley was 7·9 per 1000 living and 25·5 per 1000 living, respectively; whether he was aware that in the parish of Bromley a number of wage-earners were casual labourers and permanently under-employed; and if, under these circumstances, he proposed to take any steps to prevent further sickness and death in this and other similar districts, either through the Central Unemployed Body or in any other way.—Mr. BURNS said in reply: The figures given as to the deaths from measles in the boroughs of Poplar and Hampstead during the four weeks ending April 1st are, I understand, correct. The number of deaths in the parish of Bromley was, I am informed, 41, and in this parish the mortality from measles was low in 1910, and a considerable increase in the mortality was, according to experience, to be anticipated this year. The figures given by the honourable Member as to the annual death-rates are, I understand, based on the returns for one month. It is, of course, misleading to attempt to measure the vital conditions of a district by statistics relating to a few weeks during an epidemic period. I am quite aware that the death-rates of localities vary in consequence of many causes, one of the most important being the social condition of the inhabitants, and also that the social condition is dependent, amongst other things, upon the amount of employment available. The matter dealt with in the close of the honourable Member's question is engaging the attention of the Government.

Mr. BYLES: Have any steps been taken to consider making measles a notifiable disease?—Mr. BURNS: Yes, steps have been taken during the last month. Frequent conferences have been held between the Local Government Board, the Board of Education, and County Council and Borough Council medical officers, and the steps taken, in the judgment of all concerned, are better than if measles were made compulsorily notifiable.

*The Bread Reports.*

Mr. CHARLES BATHURST asked the President of the Local Government Board whether, in view of the opinions of Dr. Hamill and Dr. Monier-Williams in their recently issued reports to the Board as to the deleterious effects upon the health of the community of the presence of gypsum or calcium sulphate in baking powders used to give lightness to bread and cakes, and of the use of nitrous oxide in the bleaching of flour, he would forthwith introduce legislation rendering such processes illegal.

Mr. LONSDALE asked the right honourable gentleman whether he had considered the reports of Dr. J. M. Hamill and Dr. G. W. Monier-Williams, with regard to the bleaching of flour and its adulteration by the introduction of deleterious substances; and whether, having regard to the widespread adoption of these practices and the consequent loss and risk to the consumers, he would state what action he proposed to take to check methods of treating flour which had been shown to be disadvantageous to the public.

Mr. BOLAND asked the right honourable gentleman what steps, if any, he proposed to take in order to secure that flour in its most nutritive form should be supplied to the public, in accordance with the recommendations contained in the reports recently issued by his department.

Mr. BURNS replied: I shall answer these three questions together. The matter is receiving my attention, but my inspectors' reports have only been issued within the last few days, and I think some little time must be allowed for their consideration.

Mr. LONSDALE: Will the right honourable gentleman direct the attention of the Board of Trade and the Board of Agriculture to the

powers which they possess under the Bread Act, 1836, and also the Merchandise Marks Act, and urge upon them the necessity of using those powers?—Mr. BURNS: I will send to the departments referred to the two reports and communicate to them the view of the honourable Member.

Mr. LONSDALE: May I point out that the Board of Trade and the Board of Agriculture have power under the Bread Act of 1836 to deal with the matter at once?—Mr. BURNS: I will communicate that fact to the departments.

Mr. C. BATHURST: In view of the very considerable alarm caused by the publication of these reports, will the right honourable gentleman take action as soon as possible in this matter?—Mr. BURNS: I think the alarm has been exaggerated, but as we happen to have in preparation a third report on the nutritive value of various kinds of flour I think we must wait.

TUESDAY, APRIL 11TH.

*Sickness at Dartmouth and Osborne Colleges.*

Mr. ARNOLD WARD asked the First Lord of the Admiralty how many cadets at Dartmouth had suffered from infectious illnesses during the past term; how many cadets had suffered from more than one illness; and how many cadets had contracted a second illness in the sick quarters.—Mr. MCKENNA wrote in reply: The answer to the first part of the question is 242, to the second part 30, and to the third part 6.

Mr. ARNOLD WARD also asked what provisions were made at Dartmouth and Osborne for the isolation of cases of infectious illness, and particularly of early cases awaiting a definite diagnosis; whether such provisions were in accord with the most recent practice at public schools; and, if not, whether he would give instructions for the amendment of any defects in the existing system.—Mr. MCKENNA furnished the following written answer: At Dartmouth there are two separate blocks in the hospital containing four entirely isolated floors, each floor capable of accommodating 16 to 20 cases. Suspected cases and cases awaiting diagnosis are isolated in small separate rooms. At Osborne, as soon as any possibility of an infectious case comes under observation, it is at once placed in one of the isolation rooms attached to the college sick quarters. If the case proves to be infectious it is transferred by ambulance at once to the infectious hospital. The isolation room is at once disinfected. At the infectious hospital there are four separate ward-blocks, each taking about 20 patients, in which different infectious diseases can be separated. Attached to each block there is also a single isolation room which is used for observation of separate cases. I understand that these precautions are in excess of the practice which obtains in the public schools of this country.

*Hygiene Teaching in Elementary Schools.*

Dr. ADDISON, in asking leave to introduce a Bill "to require that in public elementary schools instruction shall be given in hygiene and to girls in the care and feeding of infants," said that it was identical with the Bill of last year and was in no sense a party measure. More than 200 Members of the House had signified approval of it. Of late years there had been a quickening of public interest in such matters. Owing to the efforts of various associations there had been a remarkable diminution in infant mortality. Notwithstanding that, one death in every three in this country was that of a child under the age of 5, and one in every five was an infant of less than 12 months. The causes of this great mortality were manifold. Until there was an organised effort to remove the ignorance which prevailed in matters of hygiene and the care of infants this state of affairs would continue. He contended that instruction in matters of hygiene could be given with success in schools, and he submitted his Bill in the hope that it might help forward this great work.

Leave having been given, the Bill was introduced and read a first time.

## BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.

Across the Bridges, or Life by the South London River-side. By Alexander Paterson. With an Introduction by the Right Rev. E. S. Talbot, D.D., Lord Bishop of Southwark (Bishop-Designate of Winchester). Price 6*s*.

BERGMANN, J. F., Wiesbaden. F. BAUERMEISTER, Glasgow.

Urologische Operationslehre. Von Dr. Rudolf Oppenheimer in Frankfurt a-Main. Price M.24, or 24*s*.

Funktionelle Diagnostik und Therapie der Erkrankungen des Herzens und der Gefässe. Von Professor Dr. Aug. Hoffmann in Düsseldorf. Price M.12, or 12*s*.

Lehrbuch der Magen- und Darmkrankheiten, mit besonderer Berücksichtigung der diätetischen und medikamentösen Therapie. Für praktische Ärzte und Studierende. Bearbeitet von Dr. P. Rodari, Privatdozent an der Universität Zürich. Zweite völlig umgearbeitete und bedeutend erweiterte Auflage. Price M.12, or 12*s*.

Die Blutdrucksteigerung vom ätiologischen und therapeutischen Standpunkt. (Als Preisaufgabe der Hufelandischen Gesellschaft zu Berlin mit dem Alvarengapreis gekrönt.) Von Dr. med. Karl Hasebroek, Leit. Arzt des Hamburger medico-mechan. Zanderinstitutes. Price M.3.60, or 3*s*. 9*d*.

Uber Lokalisation der Hirnfunktionen. Von C. v. Monakow in Zürich. Price M.1.60, or 1*s*. 9*d*.

Das Asthma, sein Wesen und seine Behandlung auf Grund zweiund-dreissigjähriger Erfahrungen und Forschungen dargestellt. Von San.-R. Dr. Brügelmann in Baden-Baden. Fünfte vermehrte Auflage. Price M.4.80, or 5*s*.

Diskussionen des Wiener psychoanalytischen Vereins. Herausgegeben von der Vereinsleitung. I. Heft. Uber den Selbstmord insbesondere den Schüler-Selbstmord. Beiträge von Dr. Alfred Adler, Professor S. Freud, Dr. J. K. Friedjung, Dr. Karl Molitor, Dr. R. Reitler, Dr. J. Sadger, Dr. W. Stekel, Unus multorum. Price M.1.35 or 1*s*. 6*d*.

BLACK, ADAM AND CHARLES, London.

The Social Guide, 1911. Edited by Mrs. Hugh Adams and Edith A. Browne. Price 2*s*. 6*d*. net.

BLAKISTON'S (P.) SON AND CO., Philadelphia.

Care of the Patient. A Book for Nurses. By Alfred T. Hawes, A.M., M.D. Price $1.00 net.

STOCK, ELLIOT, 62, Paternoster-row, London, E.C.

Under the Juniper Tree. Comfort for the Cloudy Day. Selected, edited, and arranged by J. M. Collis. With Introduction by the Most Rev. John B. Crozier, D.D., Primate of All Ireland. Price 3*s*. net.

UNIVERSITY OF CHICAGO PRESS, Chicago, Illinois. CAMBRIDGE UNIVERSITY PRESS, London and Edinburgh.

Animal Micrology: Practical Exercises in Microscopical Methods. By Michael F. Guyer, Ph.D., Professor of Zoology in the University of Cincinnati. Price 7*s*. net.

UNIVERSITY PRESS, Cambridge.

Plant-Life on Land considered in some of its Biological Aspects. By F. O. Bower, Sc.D., F.R.S., Regius Professor of Botany in the University of Glasgow. Price 1*s*. net.

WELLES, F. C., 9, Roland-gardens, London, S.W.

Principles of Social Development, or, Universal Ideals and Religion. By Francis Channing Welles. Books I. to VIII. bound together. Price not stated. Book IX.: Finance; Zoroastrian Ideals and Law of Development. Price 1*s*. Book X.: Public Opinion; God the Son and Law of Development. Price 1*s*.

# Appointments.

*Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to* THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CHAMBERS, WALTER D., M.B., Ch.B. Edin., has been appointed Assistant Physician to the Crichton Royal Institution, Dumfries.

FIDDES, J. D., B.Sc., M.B., Ch.B. Aberd., has been appointed Demonstrator in Anatomy in the University of Sheffield.

HARRIS, JOHN HENRY, M.D. Durh., M.R.C.S., L.S.A., D.P.H. Camb., has been appointed District Medical Officer by the Kingsbridge (Devon) Board of Guardians.

JARVIS, CHARLES G., M.D. Paris, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Visiting Physician to the Hertford British Hospital Paris.

LAKE, NORMAN C., M.B., B.S., B.Sc. Lond., has been appointed Medical Registrar to Charing Cross Hospital.

LANGRAN, WILLIAM, L.R.C.P. & S. Edin., L.A.H. Dub., has been reappointed Medical Officer of Health by the Axminster (Devon) Rural District Council.

LEACH, R. E. H., M.D., B.Ch. Oxon., has been appointed Medical Officer of Health to the Bungay Urban District Council and to the Wangford Rural District Council.

MILES, HENRY PODE, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Thirteenth District by the Kingsbridge (Devon) Board of Guardians.

PEARSE, JAMES, M.D., C.M. Edin., has been appointed Medical Officer of Health for the Trowbridge (Wilts) Urban Council.

WEBB, WILLIAM HENRY, M.D. Durh., L.R.C.P. Lond., M.R.C.S., L.S.A., has been reappointed Medical Officer of Health by the Kingsbridge (Devon) Rural District Council.

# Vacancies.

*For further information regarding each vacancy reference should be made to the advertisement (see Index).*

ABERYSTWYTH INFIRMARY AND CARDIGANSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £150 per annum.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BATH ROYAL UNITED HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

BETHNAL GREEN INFIRMARY AND WORKHOUSE, Cambridge Heath, E.—Assistant Medical Officer. Salary at rate of £100 per annum, with apartments, board, and washing.

BOLTON INFIRMARY AND DISPENSARY.—Third House Surgeon. Salary £90 per annum, with apartments, board, and attendance.

BRADFORD ROYAL INFIRMARY.—Honorary Laryngologist.

BRIGHTON, ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, Dyke-road.—House Surgeon for six months. Salary at rate of £80 per annum, with board, lodging, and washing.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

CAMBRIDGE, COUNTY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £140 per annum, with board, lodging, and attendance.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Resident House Surgeon. Salary £50 per annum, with board and residence.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £70 per annum, with board, apartments, and laundry.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

DUMFRIES COUNTY COUNCIL.—Deputy County Medical Officer, &c. Salary £300 per annum.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Officer for Electrical Department. Salary £75 per annum.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

HASTINGS, EAST SUSSEX HOSPITAL.—Honorary Pathologist.

HEREFORD, HEREFORDSHIRE GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £120 per annum, with board, apartments, and washing.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

HULL CORPORATION SANATORIUM AND EVAN FRASER (SMALL-POX) HOSPITAL.—Resident Medical Officer, unmarried. Salary £250 per annum, with board and washing.

HUNTINGDONSHIRE COUNTY COUNCIL.—County Medical Officer of Health and County School Medical Officer. Salary £400 per annum.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £90 per annum respectively, with board, washing, and residence.

LEAMINGTON, WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £85 per annum, with residence, board, and laundry.

LEICESTER INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £60 per annum, with board, apartments, and washing.

LINCOLN GENERAL DISPENSARY.—Resident Junior Medical Officer, unmarried. Salary £175 per annum, with apartments, &c.

LIVERPOOL STANLEY HOSPITAL.—Two Junior House Surgeons. Salary £70 and £60 per annum respectively.

MANCHESTER, HULME DISPENSARY.—Honorary Physician and Honorary Surgeon.

NEWCASTLE-UPON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary £160 per annum.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Honorary Assistant to Throat and Ear Department.

NEW HOSPITAL FOR WOMEN.—Female Physician. Also Two House Surgeons.

NOTTINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried. Salary £180. Also Assistant. Salary £160 per annum, with apartments, attendance, &c.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Senior House Physician. Salary £75 per annum. Also Junior House Surgeon and Junior House Physician. Salaries £50 per annum. All with residence, board, and laundry. Also Honorary Physician to the X Ray and Electrical Department.

RAMSGATE, BOROUGH OF.—Medical Officer and School Medical Officer. Salary £400 per annum.

READING, ROYAL BERKS HOSPITAL.—Second House Surgeon for six months. Salary £60 per annum, with board, lodging, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Morning House Anæsthetist. Salary £25 per annum.

ROYAL EAR HOSPITAL, Soho.—House Surgeon. Salary £40 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board and residence.

ROYAL NAVAL MEDICAL SERVICE.—Twelve Commissions.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £50 per annum, with board and washing.

SHEFFIELD ROYAL INFIRMARY.—Junior Assistant House Surgeon. Salary £65 per annum, with board and residence.

SOUTHAMPTON, COUNTY BOROUGH OF.—Assistant Medical Officer of Health. Salary £250 per annum.

SOUTHAMPTON FREE EYE HOSPITAL.—Honorary Surgeon.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £30 per annum, with board, washing, and residence.

SUNDERLAND ROYAL INFIRMARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and washing.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry.

TIVERTON INFIRMARY AND DISPENSARY.—House Surgeon and Dispenser. Salary £30 per annum.

WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST HAM UNION.—Second Assistant Resident Medical Officer. Salary £120 per annum.

# Births, Marriages, and Deaths.

## BIRTHS.

BATHURST.—On April 6th, at Haddon-road, Leeds, the wife of Lacey Bathurst, M.B., B.S. Lond., of a daughter.

CANDLER.—On April 9th, at The Terrace, Woodford Green, Essex, to Dr. and Mrs. J. P. Candler, a son.

MARSHALL.—On April 8th, at St. John's House, Lechlade, Glos., the wife of Thomas Bingham Marshall, F.R.C.S., L.R.C.P., of a son.

## MARRIAGES.

ATTKINS—HOON.—On April 5th, at Highgate Congregational Church, Leonard Charles Attkins, L.D.S. Eng., to Ethel Bessie, fourth daughter of Mr. and Mrs. C. R. Hoon, of Beechwood, Jackson's-lane, Highgate.

ROBINSON—BARNES.—On April 6th, at St. Peter's, Cranley-gardens, S.W., Henry Robinson, M.A., M.D., to Alice Margaret Sedley, daughter of the late Robert Barnes, M.D., and Mrs. Barnes.

*N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Short Comments, and Answers to Correspondents.

## THE MILK-SUPPLY OF SINGAPORE.

IN our colonies, as well as at home, the same difficulties are apparently encountered in obtaining a supply of "clean" milk. These difficulties depend largely upon the unwillingness of the workers engaged in the milk business to adopt the teachings of modern sanitary science. We are moved to make these remarks by reading recently a paper by Dr. W. R. C. Middleton in the January number of the *Malay Medical Journal* on the Milk-supply of Singapore. From this paper we learn that the milk-supply of that important eastern city is mainly in the hands of Asiatics—Tamils and Bengalis—and that this circumstance acts detrimentally upon the purity of the milk, owing partly to the filthy and careless habits of these dairymen, partly to the presence of accumulations of filth on the milkmen's premises, and partly to the uncleanliness of the persons of the milkers, particularly of their hands and clothing. In some instances, too, the water-supplies of the dairies are polluted, and consequent contamination of the milk vessels occurs in the process of washing; and further, there is the fact that this impure water is upon occasion added to the milk. In spites of rules and regulations, and notwithstanding frequent inspections by the sanitary officials, the Asiatic dairyman continues his dirty and careless methods. Prosecutions and fines appear to have little or no effect. No fewer than 286 proceedings were taken against offenders for filthy premises alone in a period of seven years quoted by Dr. Middleton, only the worst cases being taken into court, and fines amounting in the aggregate to $2586 were inflicted. Forty-five of these proceedings related to one and the same dairyman, the fines reaching a total of $367, but the condition of the premises remained practically the same. The sanitary officials have taken the greatest pains to explain the requirements of the dairy regulations so that prosecutions might be avoided, but the average Tamil or Bengali milkman seems unable to understand, or perhaps is too apathetic to take the trouble to grasp, the teachings of the patient sanitary inspectors. Registration and licensing of milk-sellers were instituted in 1905, and it was expected that the threat of revoking a licence would induce the careless dairyman to comply with the regulations. It was, however, found that withdrawal of the licence only resulted in some friend or relative taking over the business and carrying it on for the benefit of the original offender. The Bengali milkmen are even dirtier, more careless, and more ignorant than their Tamil rivals; they herd in small "shop-houses," and store their milk utensils under their beds or in other objectionable places along with the soiled linen and articles of domestic use. It is not so long ago that in our own country dirty practices were met with in relation to milk and milk products. For example, in addition to dirty cowsheds and dirty cows we have ourselves seen English milkers spitting on their filthy, unwashed, and dung-stained hands in order to get a better grip of the cow's teats. We have also seen the ice-cream pail and stock-in-trade of an Italian vendor, in an English seaside resort frequented by Londoners, stored under his bed alongside a chamber-pot full of urine and fæces. But much has been done in England of late years to improve the conditions in which milk and milk products are obtained and stored, though a good deal yet remains to be done in some districts. In Singapore the question is surrounded with more difficulty than at home, and the fact that the milk business is in the hands of Asiatics adds greatly to the trouble. We trust, however, that the patient and persevering efforts of Singapore's sanitary staff will ultimately bring the Bengali and Tamil dairymen to a proper recognition of the need for cleanliness at all stages of the milk trade, and that eventually "clean" milk will be secured for the inhabitants of this important city of the East.

## HEALTH MATTERS IN MAURITIUS.

THERE has been recently issued from the Colonial Office a belated report on the Mauritius Blue-book for 1909. Although the figures are not up to date, there are some portions of the public health section of the report which it may be of interest to summarise. The population of Mauritius itself, excluding the military and non-resident shipping population, is estimated at 373,071, and that of the dependencies and outlying islands at 6115. The birth-rate for 1909 was 34·3 per 1000, and the death-rate 36·7. The number of deaths attributed to diseases classified as specific febrile or zymotic was 7165, or 52 per cent. of the total number, of which 5248 were due to malarial diseases, 978 to diarrhœal, and 785 to miasmatic diseases. There were 1255 deaths from constitutional diseases, of which 809 were due to tuberculosis and 182 to phthisis. There were 599 deaths from bronchitis and 859 were due to pneumonia. There was a widespread recrudescence of plague, and the outbreak was the most severe which has been recorded since 1904, the total number of cases being 457 as against 167 in 1908, and the deaths 329 as against 135. The case

mortality was 72·9 per cent., the lowest recorded. The epidemic was not confined, as is generally the case, to Port Louis and the district of Plaines Wilhelms, but rapidly spread to Pamplemousses, Rivière du Rempart, Moka, and Savanne, a number of estates being affected. The incidence of malaria was less severe in 1909 than in the previous year, and the number of persons suffering from malaria and from splenic enlargement who were admitted to the public hospitals showed a marked decrease. Free distribution of quinine from depôts and at schools has been continued, and the taking of a spleen census at Port Louis afforded opportunity for a special distribution in that town. The drug is issued in the form of lozenges prepared with glycerine and covered with magnesia. The lozenges remain soft for several months, but fresh issues are made in fortnightly supplies and the doses vary from ½ grain to 5 grains. The number of children presented for vaccination at the public vaccine stations was 9709. The percentage of successful vaccinations was 98·7, and of the infants born during the year 75 per cent. were vaccinated at the public expense. There are in the island 13 hospitals (including five in connexion with the prisons and reformatory) and 28 dispensaries. There is in addition a hospital ward attached to the lunatic asylum. The number of admissions to all hospitals was 23,205 in 1909 as compared with 27,751 in 1908 and 23,355 in 1907. The number of cases treated at the dispensaries rose from 55,635 in 1907 to 69,593 in 1909, but the increase is not so much due to sickness being more prevalent as to the inclination of the poorer classes more frequently to seek medical advice at these institutions for minor ailments for which dispensary treatment would not have been sought in former years.

## FOUR-VOLT ELECTRIC HEAD LAMP.

*To the Editor of* THE LANCET.

SIR,—Let me tell country practitioners how useful a four-volt electric head lamp is, when run by dry batteries. I was called out last night in a severe snowstorm, and the light enabled me to keep the middle of the road, though one of the paraffin side-lamps would not burn. It was lighted in one minute. Acetylene gives more penetrating light, but the lamp takes several minutes to start it and requires troublesome cleaning next day. The Hellesen dry batteries, with occasional use, will last for a year. It is important to couple up only as many cells as will give a fair light. If four are coupled up they give six volts, which will destroy the filament. It is best to use only three or even two till they begin to run down, when another cell can be added to them. My experience has been over two years, so I speak with confidence. Of course, this is for a small car, run at about eight or ten miles, when in pitch darkness.

I am, Sir, yours faithfully,

April 5th, 1911. NIGHTLIGHT.

## THE CRYSTAL PALACE.

IT is a regrettable fact that the Crystal Palace with its beautiful grounds has been judicially ordered to be sold for building purposes. It would be a calamity if this well-planned breathing spot should not be preserved for rapidly extending London, but should become hepatised by a deposit of brick-and-mortar. The King Edward National Memorial Council is making strenuous efforts to keep this portion of the "lungs" of London intact, as a memorial to the late King Edward, and it appeals urgently for support of every kind. The Council, which consists of Lord Tenterden (chairman), the Earl of Kinnoull, Lord Decies, Sir Charles Parsons, K.C.M.G., Sir Alfred Turner, K.C.B., Sir W. Hood Treacher, K.C.M.G., Sir Wm. P. Treloar, Bart., and Mr. W. J. Potter, is supported by many persons prominent in science, art, literature, the drama, the services, the Church, and society in general. Each subscriber of one guinea, in one sum or in instalments, is promised a life free admission ticket to the Palace. Special privileges are offered to firms and exhibitors who subscribe large sums. Stamps to be sold at one farthing each can be purchased for 25s., which may be paid in instalments, and the sale thereof will entitle the purchaser to a life-free admission ticket. Particulars may be obtained from, and cheques (crossed "Lloyd's Bank, St. James's Branch") sent to, the Right Hon. the Earl of Kinnoull, D.L., King Edward National Memorial, 26, Shaftesbury-avenue, London, W.

## WALFORD BODIE.

ALTHOUGH the wonder-worker Bodie was a short time ago exposed in the law courts his methods of fanfaronade have been so persistent that it comes as a shock to find him as a supplicant at the feet of Æsculapius. According to the *Glasgow Citizen* of April 5th, Mr. C. W. Davies, a medical practitioner at Southport, sued Mr. Walford Bodie in the county court for £12 8s. 6d., the balance of an account for medical attendance. The judge, before making an order for the amount claimed, remarked, according to the report: "This famed bloodless surgeon, it seems, needed the service of a qualified physician, and he must pay the bill."

**COMMUNICATIONS not noticed in our present issue will receive attention in our next.**

## A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for April, 1911:—

April–October.—Rome Exhibition (United Italy's Jubilee).
April 18th–20th (Paris).—Third Congress of Physiotherapy of French-speaking Physicians.
" 18th–28th (Tunis).—Exhibition of Hygiene.
" 18th (Berlin).—Tenth Congress of the German Orthopædic Surgery Society.
" 19th–22nd (Berlin).—German Surgical Congress. (Fortieth Annual Meeting.)
" 19th–22nd (Wiesbaden).—Twenty-eighth German Congress of Internal Medicine.
" 20th–22nd (Groningen).—Thirteenth Nature and Medical Congress.
" 22nd–May 6th (London, Olympia).—Building Exhibition.
" 23rd (Berlin).—Seventh Congress of the German Röntgen Society.
" 29th–Oct. 26th (Turin).—International Exhibition.

# Medical Diary for the ensuing Week.

## SOCIETIES.

**ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).**

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—H. G. Adamson, J. H. Sequeira), at 11, Chandos-street, W.: at 5 P.M.
Cases and Specimens.

FRIDAY.

GENERAL MEETING OF FELLOWS at 4.45 P.M.
Election of Candidates for Fellowship.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—Reginald Morton, G. Harrison Orton): at 8.30 P.M.
*Demonstrations:*
Mr. Deane Butcher: Osmotic Growths.
Dr. Reginald Morton: Fracture of Sesamoid Bone of Great Toe.
*Paper:*
Dr. Samuel Sloan: Success and Failure in Electro-therapy: a Consideration of Some of the Causes.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Mr. E. J. Spitta: A Report on the Grayson's Rulings presented by Mr. Conrad Beck to the Royal Microscopical Society.—Mr. E. J. Sheppard: The Reappearance of the Nucleolus in Mitosis.—Señor Domingo de Orueta: Apparatus for Photomicrography with the Microscope standing in any Position, especially in Inclined Position.—Mr. J. Murray: Canadian Rotifers Collected by the Shackleton Antarctic Expedition, 1909. Mr. E. J. Spitta: Demonstration of Low-power Photomicrography with Special Relation to Colouring Methods.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

**POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.**

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

**NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.**

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen): Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie). Dr. F. Thomson: Demonstration of the Infectious Fevers at the North-Eastern Fever Hospital, St. Anne's-road, N.
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie). Dr. F. Thomson: Demonstration of the Infectious Fevers at the North-Eastern Fever Hospital, St. Anne's-road, N.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

FRIDAY.—5.15 P.M., Demonstration:—Mr. H. A. T. Fairbank: Deformities—Congenital Dislocation of the Hip; Coxa Vara; Coxa Valga. (Special Post-Graduate Course.)

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3.45 P.M., Lecture;—Mr. W. Stuart-Low: Method of Examination.

## OPERATIONS.

### METROPOLITAN HOSPITALS.

**MONDAY** (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

**TUESDAY** (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

**WEDNESDAY** (19th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

**THURSDAY** (20th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

**FRIDAY** (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

**SATURDAY** (22nd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospitals operations are performed daily.

## EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

*It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.*

*Lectures, original articles, and reports should be written on one side of the paper only,* AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

*Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.*

*We cannot prescribe or recommend practitioners.*

*Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."*

*Letters relating to the publication, sale and advertising departments of* THE LANCET *should be addressed "To the Manager."*

*We cannot undertake to return MSS. not used.*

## MANAGER'S NOTICES.

### TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

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## METEOROLOGICAL READINGS.

*(Taken daily at 8.30 a.m. by Steward's Instruments.)*

THE LANCET Office, April 11th, 1911.

| Date. | Barometer reduced to Sea Level and 32° F. | Direction of Wind. | Rain fall. | Solar Radio in Vacuo. | Maximum Temp. Shade. | Min. Temp. | Wet Bulb. | Dry Bulb. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| April 5 | 30·10 | N.E. | 0·03 | 89 | 37 | 31 | 30 | 32 | Cloudy |
| ,, 6 | 30·21 | N.E. | ... | 78 | 38 | 28 | — | 32 | Cloudy |
| ,, 7 | 30·17 | E. | ... | 79 | 43 | 32 | 35 | 37 | Snowing |
| ,, 8 | 30·25 | N.E. | ... | 67 | 50 | 36 | 39 | 41 | Overcast |
| ,, 9 | 30·36 | N.E. | ... | 63 | 49 | 39 | 41 | 43 | Cloudy |
| ,, 10 | 30·06 | N.E. | 0·02 | 87 | 45 | 40 | 39 | 40 | Cloudy |
| ,, 11 | 30·21 | N.E. | ... | 75 | 51 | 40 | 41 | 44 | Cloudy |

**The following journals, magazines, &c., have been received:**—Anti-vivisection Review, Therapeutic Gazette, St. George's Hospital Gazette, Tidsskrift for den Norske Lægeforening, Military Surgeon, Guy's Hospital Gazette, Annales des Maladies des Organes Génito-Urinaires, Bulletin de la Société Royale des Sciences Médicales et Naturelles de Bruxelles, Archives de Médecine et Pharmacie Navales, Die Therapie der Gegenwart, Indian Public Health, Bulletin de la Société d'Études Scientifiques sur la Tuberculose, Bulletins et Mémoires de la Société de Radiologie Médicale de Paris, Indian Medical Journal, American Journal of Medical Sciences, Detroit Medical Journal, Annali di Medicina Navale e Coloniale, Journal of the Royal Army Medical Corps, Archives Internationales de Neurologie, Review of Neurology and Psychiatry, Archives Générales de Médecine, Revue de Psychiatrie, Chirurgia, Proceedings of the Royal Society of Medicine, Journal of Laryngology, Rhinology, and Otology, Royal Army Medical Corps Journal.

## Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Army and Navy Male Nurses' Co-operation, Lond., Secretary of; *Æsculape*, Paris, Editor of; American Manufacturing Co., Memphis, U.S.A.; Admiralty, Medical Department, Director-General of.

B.—Sir Edward Buck, Baku; Dr. W. Barrie Brownlie, Strathaven; Mr. W. G. Burcombe, Lincoln; Lieutenant-Colonel E. H. Brown, I.M.S., Calcutta; Mr. F. J. Bishop, Lond.; Sir James Barr, Liverpool; Mr. Henry Bazett, St. Leonards; Mr. W. Deane Butcher, Lond.; *Brain*, Lond., Editor of; Bayer Co., Lond.; Dr. A. G. Bateman, Lond.; Mr. Stanley Bott, Bude; Mr. J. Ballantine, Edinburgh; Dr. W. Brander, Sheffield; Birmingham General Hospital, House Governor of; Messrs. W. H. Bailey and Son, Lond.; Dr. R. Blondel, Paris; Mr. C. J. Bond, Leicester.

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D.—Mr. T. Dixon, Lond.; Mr. B. Darke, Lond.; Mr. Charles Dalton, Lond.; Sir Dyce Duckworth, Bart., Lond.; Mr. W. T. Day, Lond.; Dorset County Hospital, Dorchester, Secretary of; Dr. Alexander Duke, Lond.; Messrs. Down Bros., Lond.; Dr. Dagincourt, Paris; Deutsche Röentgen Gesellschaft, Berlin.

E.—Edison Manufacturing Co., Lond.

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H.—Dr. B. Hollander, Lond.; Hull Corporation, Clerk to the; H. L.; Mr. P. Maynard Heath, Lond.; Dr. Alexander Haig, Lond.; Mr. C. W. Hutt, Warrington; Dr. G. Hamel, Lond.; Dr. David Hunter, Goodmayes; Harveian Society of London, Secretary of; Huntingdonshire County Council, Huntingdon, Clerk to the; Miss E. M. Homersham, Lond.; Major W. F. Harvey, I.M.S., Kasauli; Mr. A. Hardy, Lond.; Dr. A. F. Hertz, Lond.; Mr. T. W. Hurst, Chicago; Dr. Guy Hinsdale, Virginia Hot Springs.

I.—Institut für Schiffs und Tropenkrankheiten, Hamburg; Ingham Infirmary, South Shields, Secretary of.

J.—Mr. W. C. Jack, Lond.; J. C.; Dr. H. L. Jones, Lond.; Dr. A. C. Jordan, Lond.; Jamaica, Colonial Secretary of; Junior Philatelic Society, Lond.

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